



MAIL STOP APPEAL BRIEF—PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Marshall O. Townsend II

Attorney Docket No. GLFP-1-1001

Serial No.: 10/041,836

Group Art Unit: 3711

Filing Date: January 7, 2002

Examiner: Legesse, Nina F.

Title: Golf Swing Training Template

APPLICANT'S APPEAL BRIEF

Seattle, Washington

May 14, 2003

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PATENT TRADEMARK OFFICE

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STATUTES

35 U.S.C. § 103(a)	passim
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PATENT REFERENCES

U.S. Patent No. 1,484,390 (Gibbs et al.).....	4, 7, 8, 9
U.S. Patent No. 2,652,251 (Molinar)	4, 7
U.S. Patent No. 2,707,638 (Manley).....	4, 7, 8
U.S. Patent No. 5,273,285 (Long)	4, 7, 8
U.S. Patent No. 5,415,407 (Beatty)	4, 7, 8
U.S. Patent No. 6,156,396 (Florian)	4, 7, 8

OTHER AUTHORITIES

M.P.E.P. § 706.02(j)	10
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I. REAL PARTY IN INTEREST

The real party in interest in the pending patent application is The Golfer's Footprint, Inc., a privately-held corporation having a principal place of business at 3477 West Elm Creek Drive, Meridian, Idaho, 83642.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to appellant or appellant's counsel that will directly affect, be directly affected by, or have a bearing in the Board's decision in the pending appeal.

III. STATUS OF THE CLAIMS

Claims 1, 4-6, 9-13, 20-22, and 25-31 are currently pending in the application and are at issue in this appeal. Claims 2, 3, 7, 8, 14-19, 23, and 24 have been canceled.

In a final Office Action dated December 9, 2002, all of the claims were rejected under 35 U.S.C. § 103(a) in view of various combinations of prior art references.

Claims 1, 11-13, and 20 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 1,484,390 (Gibbs et al.) in view of U.S. Patent No. 2,707,638 (Manley).

Claims 4-6, 10, and 25-31 were also rejected in view of the combination of Gibbs, Manley, and U.S. Patent No. 2,652,251 (Molinar).

Claim 9 was rejected in view of the combination of Gibbs and Manley together with U.S. Patent No. 5,415,407 (Beatty) and U.S. Patent No. 5,273,285 (Long).

Claims 21 and 22 were rejected in view of the combination of Gibbs, Manley, and U.S. Patent No. 6,156,396 (Florian).

IV. STATUS OF AMENDMENTS

No amendments have been filed since the Examiner's final rejection.

V. SUMMARY OF THE INVENTION

The invention is a golf swing training template having a graphic design that illustrates a plurality of golf swing variables, including a club path indicator and a swing reference guide. The template is designed so that golfers may practice swinging a golf club over the top of the template to ensure that their swing follows a desired path. In general terms, the "club path indicators" are representations of possible paths that the head of a golf club might take as it passes over the template and toward a golf ball. The "swing reference guide" is a guide that explains how to control one or more swing variables such as the swing path or club face orientation in order to accomplish a particular golf shot.

Claim 1, the only independent claim, reads as follows.

1. A golf swing training device, comprising:
a template, the template having a top and a bottom; and,
a graphic design attached to the template, the graphic design depicting (i) a plurality of club path indicators, (ii) a swing reference guide comprising a plurality of shot selection types, and (iii) a link between each one of the plurality of shot selection types and one of the club path indicators.

The preferred "template" of claim 1 is shown in Figure 1 (reproduced below) in the pending application and is indicated by reference number 20. Figure 1 also depicts a graphic design attached to the template. The claim requires that the graphic design have several aspects, including "(i) a plurality of club path indicators." The club path indicators are shown in the embodiment of Figure 1 as the primary club path 28, inside-out club path 32, the over the top—

outside-in club path 34, and the take-away club path 36. Thus, while swinging a golf club over the template, a golfer may attempt to cause the golf club head to follow the path of any of the individual club path indicators.

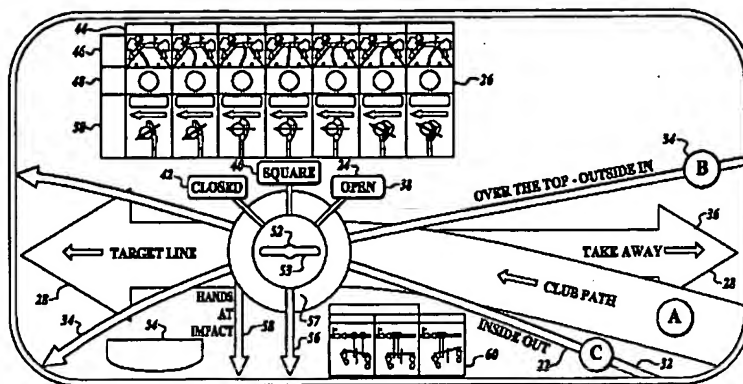


Fig. 1.

Claim 1 also requires “(ii) a swing reference guide comprising a plurality of shot selection types.” The description of

the preferred swing reference guide is contained in the application at page 6, beginning at line 1, and is indicated in Figure 1 by reference number 26. Figure 3, reproduced

	FULL	HOOK	DRAW	STRAIGHT	FADE	SLICE	PUSH
BALL PATH							
CLUB PATH	(B)	(C)	(C)	(A)	(B)	(B)	(C)
CLUB FACE	CLOSED	CLOSED	SQUARE	SQUARE	SQUARE	OPEN	OPEN

Fig. 3.

here, also shows the preferred swing

reference guide, but enlarged and in greater detail. As explained in the specification, “the swing reference guide 26 provides a tabular reference for shot selection 44, ball path selection 46, club path selection 48 and club face selection 50. The guide 26 is printed in large print and colors that correspond to the club path indicators 22 to assist in cross-referencing the ball’s flight back to the club path 22 and club face angle 24.” Thus, the swing reference guide depicts several “shot selection types” along with the corresponding ball path, club path, and club face angle.

Finally, claim 1 requires, "(iii) a link between each one of the plurality of shot selection types and one of the club path indicators." This "link" is useful because, as shown in the form of Figure 1, there are many different indicators on the template, causing it to be busy and difficult to digest. The specification explains several forms that the "link" can take. For example, it explains on page 4 at lines 13, 19, and 26, that the use of letters such as A, B, and C in both the swing reference guide and on the club path indicators help to visually link the two together. In that manner, a golfer can choose a desired ball path from the swing reference guide, then quickly find the club path necessary to accomplish that ball path. The specification further explains that colors or other indicators may also be used as a link, at page 6, lines 3-5 ("The guide 26 is printed in large print and colors that correspond to the club path indicators 22 to assist in cross-referencing the ball's flight back to the club path 22 and club face angle 24.").

Additional aspects found in other claims and shown in the preferred embodiment of Figure 1 include a handle 54, tee bore 52, tee slot 53, and others.

VI. ISSUES PRESENTED

The issue presented for review is whether the Examiner improperly rejected the pending claims under 35 U.S.C. § 103(a). In other words:

(1) Were claims 1, 11-13, and 20 improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 1,484,390 (Gibbs et al.) in view of U.S. Patent No. 2,707,638 (Manley)?

(2) Were claims 4-6, 10, and 25-31 improperly rejected under 35 U.S.C. § 103(a) in view of the combination of Gibbs, Manley, and U.S. Patent No. 2,652,251 (Molinar)?

(3) Was claim 9 improperly rejected in view of the combination of Gibbs and Manley together with U.S. Patent No. 5,415,407 (Beatty) and U.S. Patent No. 5,273,285 (Long)?

(4) Were claims 21 and 22 improperly rejected in view of the combination of Gibbs, Manley, and U.S. Patent No. 6,156,396 (Florian)?

VII. GROUPING OF CLAIMS

The examiner grouped the claims into four sets. For the purpose of this appeal, the applicant will adopt groups 1 and 2, and combine groups 3 and 4 into a single group. Accordingly, the three groups are:

- (1) claims 1, 11-13, and 20
- (2) claims 4-6, 10, and 25-31
- (3) claim 9 and 21-22

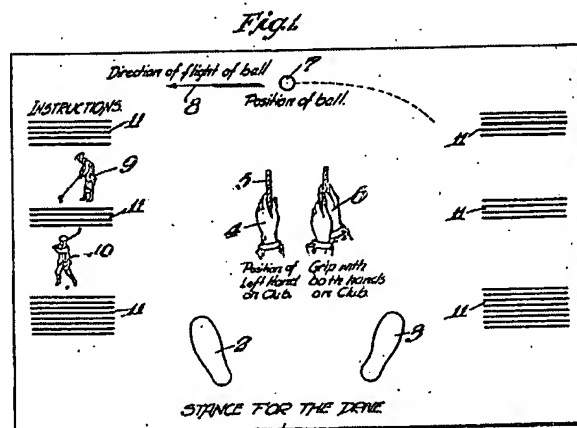
VIII. ARGUMENT

A. CLAIMS 1, 11-13, AND 20 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(A)

1. *References Relied Upon For Rejection*

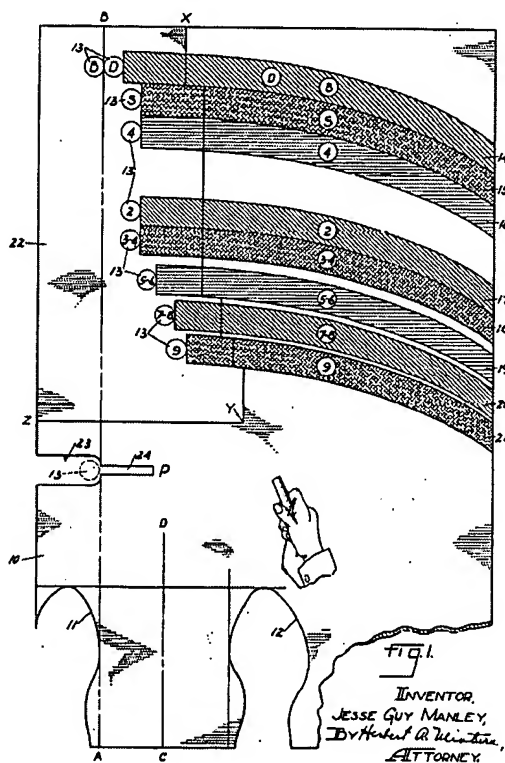
In the final rejection under 35 U.S.C. § 103, the Office Action rejected claims 1, 11-13, and 20 in view of the combination of prior patents to Gibbs (U.S. Patent No. 1,484,390) and Manley (U.S. Patent No. 2,707,638).

Figure 1 from the Gibbs patent is reproduced here. Gibbs provides a “*series of instruction charts*” on which a learner is adapted to stand and which are designed for the principal shots in the game of golf...” Gibbs, col. 1, lines 39-42. Each of the



figures in the Gibbs patent relates to a single, different golf shot. Thus, figure 1 is strictly related to a drive, figure 2 teaches a brassie shot, figure 3 teaches a midiron shot, and so on. *See Gibbs*, col. 2, lines 72-92. Further on, Gibbs reiterates that the invention provides “a series of sheets or pads.” Gibbs, col. 2, line 97. There is nothing in Gibbs that even remotely suggests that instructions for a plurality of shots can be incorporated onto a single template. Considering the manner in which the graphic content is organized on the Gibbs sheets, it is impossible to imagine how Gibbs could possibly consolidate the series of sheets into a single sheet. For that reason, Gibbs does not teach or suggest a plurality of swing path indicators, a swing reference guide comprising a plurality of shot selection types, nor a link between the possible shot selection types and a swing path indicator.

Manley provides a single template having a plurality of possible swing paths along with a slot to accommodate a ball and tee, as shown in Figure 1 from Manley, reproduced here. There are no other instructional aids on the Manley device, and certainly no swing reference guide. Because there is no swing reference guide, there is certainly no need nor suggestion for a link between possible shots depicted in a swing reference guide and the plurality of swing paths. In sum, the Manley device is nothing more than a plurality of swing paths on a single sheet.



2. The Claims Were Improperly Rejected

Claims 1, 11-13, and 20 were improperly rejected under 35 U.S.C. § 103(a) in view of the combination of Gibbs and Manley. To establish a *prima facie* case of obviousness, the combined references must teach or suggest *each and every claim limitation*. M.P.E.P. § 706.02(j); *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991); *In re Wilson*, 424 F.2d 1382 (“all words in a claim must be considered in judging the patentability of that claim against the prior art”). “A PTO rejection for obviousness is improper when there is nothing in the cited prior art references, either singly or in combination, to suggest the desirability of the claimed subject matter.” *In re Deminski*, 796 F.2d 436 (Fed. Cir. 1986). In the present case, the rejection is improper, and fails to establish a *prima facie* case of obviousness, because the invention of claim 1 includes limitations neither taught nor suggested in any combination of the cited references.

a. The “link” and “swing reference guide” limitations are not found in the prior art

Two limitations required by claim 1 are not found in either Gibbs or Manley, including the “link” limitation and the “swing reference guide” limitation. In particular, these two limitations of claim 1 read as follows:

- (ii) a swing reference guide comprising a plurality of shot selection types, and
- (iii) a link between each one of the plurality of shot selection types and one of the club path indicators.

As explained above, Gibbs provides a set of golf swing charts in which each chart depicts only a single possible golf swing. For that reason, Gibbs is a poor choice for a primary reference

because it does not teach or suggest either of the above claim limitations, nor does it teach a plurality of club path indicators as required by claim 1.

With regard to the swing reference guide, the Final Office Action makes no express reference to Gibbs other than to say that Gibbs discloses it. Yet Gibbs does not disclose “a swing reference guide comprising a plurality of shot selection types” because there is no need for it. As a series of separate charts rather than a single consolidated template as claimed, Gibbs has no need for a swing reference guide comprising a plurality of shot selection types.

The “link” limitation is also wholly missing from Gibbs. The Final Office Action refers to reference number 11 in Gibbs, and contends that the instructions of reference numeral 11 can be considered to be links. But this is simply not possible. Gibbs explains that reference numeral 11 refers to “printed directions, such as ‘Keep eye on the ball’, ‘Keep left arm straight’, ‘Bend left knee in up swing’ and the like” Gibbs, col. 3, lines 24-26. These are instructional tips and not links.

Moreover, the “link” limitation of claim 1 more fully requires, “a link between each one of the plurality of shot selection types and one of the club path indicators.” The instructional tips in Gibbs cannot possibly serve as links as recited in the above claim limitation because Gibbs does not teach or suggest *any* of the underlined aspects of a link, a plurality of shot selection types on a single template, or a plurality of club path indicators. Because the “link” limitation as claimed is not taught or suggested in the prior art, the rejection is improper. *See In re Nielson*, 816 F.2d 1567 (Fed. Cir. 1987).

b. There is no suggestion or motivation to modify Gibbs to form the claimed invention

An advisory action mailed on February 28, 2003 again relied on Gibbs and Manley, and again characterized the “instructions” of the Gibbs patent as “links.” In the words of the advisory action, “If one combines Gibbs with Manley, it is obvious that the instructions of Gibbs (38, 47, 56) would be modified to include how to properly select and use the different club paths. And these instructions could be called links because the modified temple [sic: template] would have a plurality of shot selection types and club path indicators.”

The combination asserted by the Examiner is improper. The cited references simply do not teach or suggest *either* a swing reference guide having a plurality of shot selection types *or* a link between the shot selection type and club path indicators, all placed on a single template. Thus, even if the instructions could somehow be “modified” as the office action suggests, the resulting combination would *still* lack the limitation related to the swing reference guide.

In addition, the modification proposed by the examiner is simply not taught or suggested by the prior art. Even if the prior art disclosed the swing reference guide and link limitations—which it does not—there must still be a motivation in the art to combine them as claimed. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931 (Fed. Cir.), *cert. denied*, 498 U.S. 920 (1990). The need for such a motivation is particularly acute where, as here, one or more claim limitations is wholly missing yet the examiner contends that it would be obvious to modify the prior art to produce it. *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999) (A showing of a suggestion, teaching, or motivation to combine prior teachings “must be clear and particular. . . Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence.”); *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990) (Although a prior art device “may be

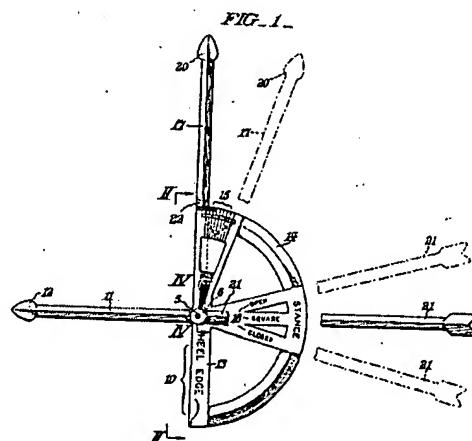
capable of being modified to run the way [the patent applicant's] apparatus is claimed, there must be a suggestion or motivation in the reference to do so.”);

Moreover, the rejection here improperly relies on hindsight reconstruction. As the Federal Circuit has cautioned, the requirement for a teaching or motivation to combine or modify is the best defense against improper use of hindsight. *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999). “The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). It is impermissible to use the claimed invention as an instruction manual to piece together the teachings of the prior art to render the claimed invention obvious. *Id.* The rejection here is improper because it uses the claimed invention as a guide to combine elements from the prior art with additional elements not found in the art in order to piece together the claimed invention.

B. CLAIMS 4-6, 10, AND 25-31 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(A)

As with claim 1 above, there are numerous features within this grouping of claims that are not taught or suggested by the cited art. For example, claims 5 and 6 require club face angle indicators of various types. The Final Office Action asserts that U.S. Patent No. 2,652,251 to Molinar teaches the claimed limitations. According to the Office Action, Molinar discloses “a club face indicator (16).”

The Molinar patent, however, does not teach any aspect of the importance of a golf club face, let



alone a club face indicator as claimed. In fact, reference numeral 16 in Molinar refers to a *stance* indicator, not a *club face* indicator. Indeed, the word “stance” is printed on the Molinar device next to the reference numeral 16. Likewise, the text of the Molinar patent explains that, “the bars 13, 14 also support three arms 16 which carry markings indicating the proper relative positions of the parts for opening and closing the golfer’s stance.” Molinar, at column 2, lines 34-41. The Molinar device only assists in providing a proper stance and neither teaches nor suggests a club face indicator as claimed.

Claims 25-31 recite with greater particularity the types of “links” that are required of the individual claims. Because the cited art does not teach or suggest links at all, it does not teach or suggest the particular links required by these claims. While the Final Office Action alleges that these aspects are “mere matters of design,” there is no support that any of the claims, when considered as a whole, are obvious in view of the art cited.

Claim 28, as yet another particular example, requires the inclusion of an illustration of a representative ball flight path for each of the plurality of shot selection types within the swing reference guide. There is no attempt in the Final Office Action to demonstrate that this limitation is taught or suggested by the prior art. Consequently, this grouping of claims should be allowable.

C. CLAIMS 9 AND 21-22 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(A)

Claims 9 and 21-22 each depend from claim 1. For the purpose of this appeal, the applicant will rely on the arguments above with respect to claim 1, and contend only that they should not have been rejected because they depend from allowable claim 1.

IX. CONCLUSION

For the foregoing reasons, the Examiner's final rejections should be reversed and the pending claims should be allowed.

Respectfully submitted,

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MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via Express Mail Label No.: EL476465036US under 37 C.F.R. § 1.10 on the date indicated below addressed to: Commissioner for Patents, Mail Stop Appeal Brief—Patents, Washington D.C. 20231.

5/14/03
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Rachel M. Woodard
Rachel M. Woodard

APPENDIX A – Claims on Appeal

1. A golf swing training device, comprising:
 - a template, the template having a top and a bottom; and,
 - a graphic design attached to the template, the graphic design depicting (i) a plurality of club path indicators, (ii) a swing reference guide comprising a plurality of shot selection types, and (iii) a link between each one of the plurality of shot selection types and one of the club path indicators.
4. The training device of Claim 1, wherein the club path indicators include at least one of a primary club path, inside-out club path, outside-in club path or take away club path indicator.
5. The training device of Claim 1, wherein the swing reference guide further comprises a club face angle indicator associated with each of the shot selection types.
6. The training device of Claim 5, wherein the club face angle indicator includes at least one of an open club face, closed club face or a square club face indicator.
9. The training device of Claim 1, wherein the template is constructed of impact resistant plastic and coated with an ultraviolet protective layer.
10. The training device of Claim 1, further comprising a handle.
11. The training device of Claim 1, further comprising a tee bore extending through the template, the tee bore being configured to receive a golf tee or a golf ball.
12. The training device of Claim 11, further comprising a generally longitudinal tee slot extending from the tee bore in a direction radially outward from the tee bore.
13. The training device of Claim 1, wherein the golf swing training indicators further comprise a foot and ball position indicator.
20. The device of Claim 1, wherein the graphic design is attached to a top surface of the template.

21. The device of Claim 1, wherein the graphic design is attached to a bottom surface of the template.
22. The device of Claim 1, wherein the graphic design is laminated within the template.
25. The device of claim 5, wherein the link comprises a first insignia associated with at least one of the plurality of shot selection types and a corresponding insignia associated with at least one of the club path indicators.
26. The device of claim 25, wherein the first insignia and corresponding insignia each comprise an alphanumeric character.
27. The device of claim 5, wherein the link comprises the use of a plurality of colors, such that each of the club path indicators is formed in a color that is substantially the same as a color used for at least one shot selection type.
28. The device of claim 27, wherein the graphic design depicting the plurality of shot selection types further comprises an illustration of a representative ball flight path for each of the plurality of shot selection types.
29. The device of claim 28, further comprising a tee bore extending through the template and a generally longitudinal tee slot extending from the tee bore in a direction radially outward from the tee bore.
30. The device of claim 29, wherein the graphic design further depicts a foot and ball position guide.
31. The device of claim 30, further comprising a club face angle guide, the club face angle guide comprising a plurality of hash marks extending radially outward from the tee bore.



05-16-03

A/P/El

MAIL STOP APPEAL BRIEF-PATENTS

#40 Appeal Brief 3711
Simmenra

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Marshall O. Townsend II

Attorney Docket No. GLFP-1-1001

Serial No.: 10/041,836

Group Art Unit: 3711

Filing Date: January 7, 2002

Examiner: Legesse, Nina F.

Title: GOLF SWING TRAINING TEMPLATE

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TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

TO THE COMMISSIONER FOR PATENTS:

Transmitted with this letter is:

1. Applicant's Appeal brief
2. Check No. 8165 in the amount of \$160 is attached (fee for filing a brief in support of an Appeal under 37 C.F.R. § 1.17(c)). Please charge any deficiency or credit any overpayment to Deposit Account No. 501050. A duplicate of this transmittal is attached.
3. Return receipt postcard.

Respectfully submitted,

BLACK LOWE & GRAHAM^{PLLC}

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Registration No. 40,001

Direct Dial: 206.381.3304

MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via Express mail under 37 C.F.R. § 1.10, EL476465036US on the date indicated below addressed to: BOX AF, Assistant Commissioner for Patents, Washington D.C., 20231.

5/14/03

Date of Deposit

Rachel M. Woodard

Rachel M. Woodard



25315

PATENT TRADEMARK OFFICE

Feb. 19, 1924.

1,484,390

E. D. GIBBS ET AL

INSTRUCTION CHART FOR PLAYING GOLF

Filed Nov. 1, 1922

2 Sheets-Sheet 1

Fig. 1

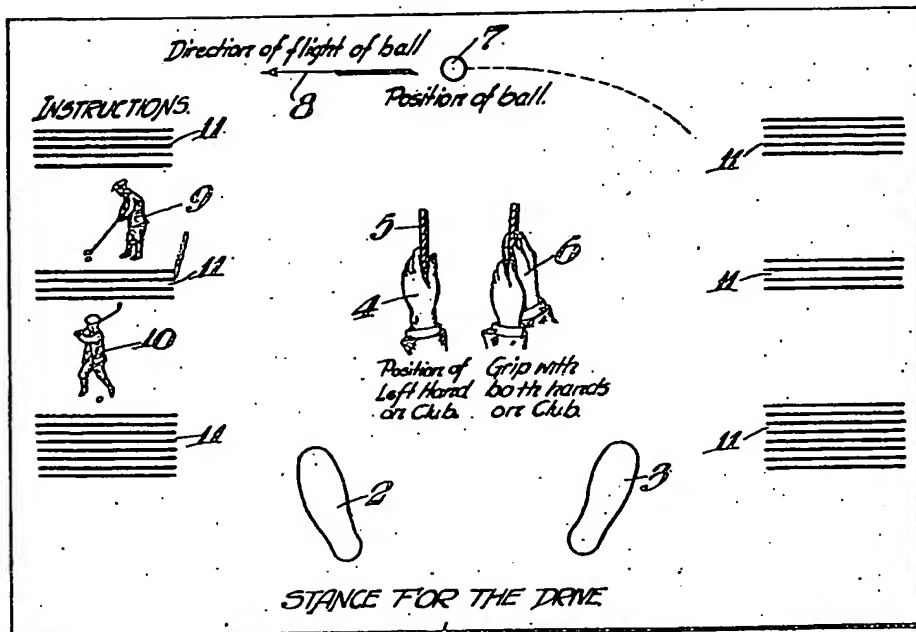


Fig. 2

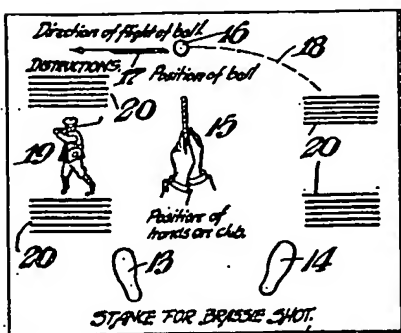
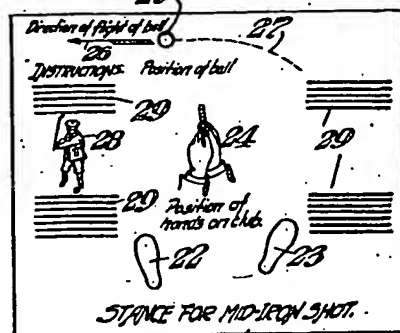


Fig. 3



INVENTORS:
Edmund D. Gibbs.
BY Theodore E. Wiedersheim.
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ATTORNEYS.

Feb. 19, 1924.

1,484,390

E. D. GIBBS ET AL

INSTRUCTION CHART FOR PLAYING GOLF

Filed Nov. 1, 1922

2 Sheets-Sheet 1

Fig. 1.

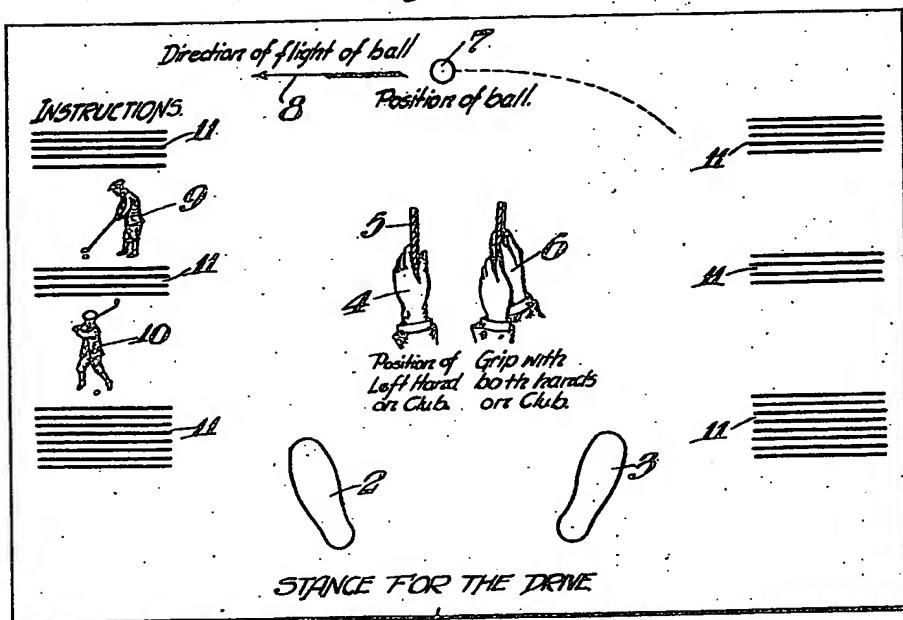


Fig. 2.

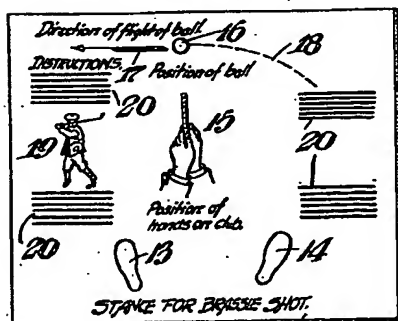
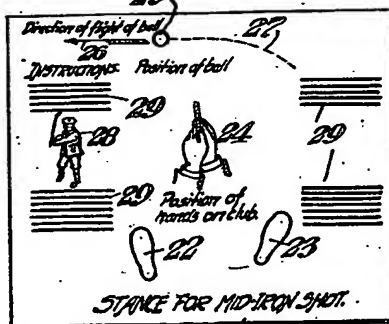


Fig. 3.



INVENTORS:
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Feb. 19, 1924:

1,484,390

E. D. GIBBS ET AL

INSTRUCTION CHART FOR PLAYING GOLF

Filed Nov. 1, 1922

2 Sheets-Sheet 2

Fig. 4

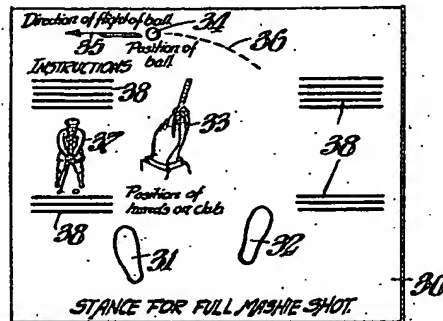


Fig. 5

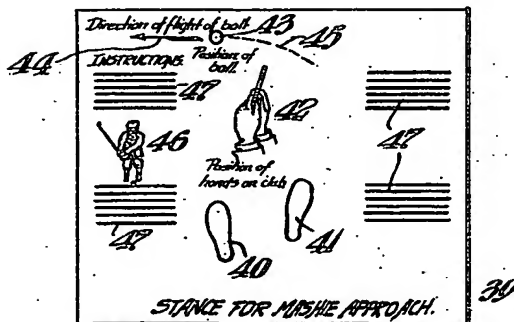
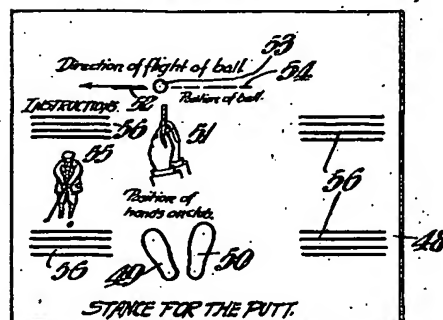


Fig. 6



INVENTORS:
Edmund D. Gibbs
By Theodore E. Wiegand
Theodore E. Wiegand
Hedderheim & Fairbank
ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDMUND D. GIBBS, OF AKRON, OHIO, AND THEODORE E. WIEDERSEIM, OF PHILADELPHIA, PENNSYLVANIA.

INSTRUCTION CHART FOR PLAYING GOLF.

Application filed November 1, 1922. Serial No. 598,270.

To all whom it may concern:

Be it known that we, EDMUND D. GIBBS, a citizen of the United States, residing in the city of Akron, county of Summit, State of Ohio, and THEODORE E. WIEDERSEIM, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Instruction Chart for Playing Golf.

In learning the game of golf, there are certain essential and fundamental principles, which a novice should grasp at the outset, certain of the principal elementary fundamentals being usually considered to be the stance or position of the feet in making the various shots, the grip or positioning of the hands with respect to the club shaft and the position of the golf ball with respect to the stance or to the right and left foot.

There are also certain approved conventional positions to be assumed by the player when addressing the ball. All of the foregoing fundamentals can be ascertained from an instructor, but in case proper instruction is not available, the novice is liable to form incorrect habits of stance or grip and improperly to address the ball for the various shots and the object of our invention is to provide a series of charts, wherefrom a novice can readily learn the various rudiments of the game of golf and without resource to professional instruction, or if the latter is available, the employment of our novel charts will greatly facilitate and expedite the quick understanding of the fundamentals of the game.

To the above ends, our invention consists of a novel series of instruction charts on which a learner is adapted to stand and, which are designed for the principal shots in the game of golf, as the drive, brassie, midiron, full mashie, mashie approach and the putt, said charts being provided with novel symbols thereon, indicating the proper stance, the position of the golf ball with respect to the stance, or the player's feet, and the proper manner of gripping the proper clubs for the successive shots, together with an illustration of the proper manner of addressing the ball for the various shots, there being legends or directions

also on the chart, calling the novice's attention to the manner of eliminating various faults, which are liable to be present in the game of most beginners.

It further consists of other novel features, of construction and advantage, all as will be hereinafter fully set forth.

For the purpose of illustrating our invention, we have shown in the accompanying drawings forms thereof which are at present preferred by us, since they will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which our invention consists can be variously arranged and organized and that our invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a plan view of our novel instruction chart, illustrating the proper stance, grip, and position of a golf ball for the drive, together with the proper address therefor.

Figure 2 represents a plan view of our novel chart containing substantially the same general symbols and instructions for a brassie shot.

Figure 3 represents a plan view of our novel chart containing the symbols and instructions for the midiron shot.

Figure 4 represents a plan view of our novel chart containing the symbols and instructions for a full mashie shot.

Figure 5 represents a plan view of our novel chart containing the symbols and instructions for the mashie approach.

Figure 6 represents a plan view of our novel chart containing the symbols and instructions for the putt.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—

In carrying out our invention, we provide a series of sheets or pads forming bases to be placed on the ground or on a floor and on which are symbols appertaining to the various golf shots, commonly played from the tee to the putting green upon each of which charts the fundamental essentials of each shot are visually correctly portrayed, to wit, the stance or proper position of the

feet, the grip or proper position of the hands in gripping the club and lastly the conventional or approved position of the ball with respect to the right and left foot or more generally with respect to the stance, the direction of the ball's flight being also indicated, each of which charts will now be described in detail.

1 describes the instruction chart for the drive, which comprises a sheet pad or base of suitable material, having thereon the outlines of the left and right foot as indicated at 2 and 3, these symbols being indicative of the stance. At 4 is indicated the manner of gripping the golf club 5, as the driver with the left hand, and at 6 is indicated the grip with both hands. 7 designates the golf ball and 8 the arrow showing the direction of its flight, and the curved dotted line, the direction of the back swing. 9 the correct address for the drive, 10 the approximate position of the driver at the completion of the up swing and at the points 11 may be printed directions, such as, "Keep eye on the ball", "Keep left arm straight", "Bend left knee in up swing" and the like.

The chart or sheet or pad 1 may be made of oil cloth, pasteboard, rubber or other suitable material to be placed as a base upon the floor or on the ground, and the player in learning or practicing the drive standing on said base readily acquires a proper stance by placing his left and right foot upon the outlines 2 and 3. The shaft of the driver is then gripped with the left hand, as indicated at 4, and the right hand placed thereon, so that the proper grip for both hands as indicated at 6 is ascertained and the player can then either place a ball at the pointed indicated at 7, or he can practice the swing, or the drive on the circle as indicated at 7. He can further acquire the proper form for the address by keeping his eye upon the figure 9 and the proper form at the termination of the upswing can be acquired by keeping the eye on the figure 10.

The outlines or symbols 2 and 3 are positioned so as to conform with the conventional open stance, the toes of the player being pointed outwardly and by the employment of and practice from our novel chart, the proper position of the golf ball 7 with respect to each foot can be quickly and readily ascertained.

While the stance shown in Figure 1, for the drive is what is generally termed the open stance, with the ball 7 at a point about midway between the left and right foot 2 and 3, or at a distance a little nearer the left foot than the right foot and may be modified as the player becomes more proficient, since some players drive off the left foot and some off the right foot, the stance shown in Figure 1 may be considered as the proper or

conventional stance and address for the drive, and it is the one which the novice is generally recommended to follow.

In like manner, the chart 12 seen in Figure 2, containing the diagrams for the fundamentals of the brassie shot, contains the outlines or symbols 13 and 14 for the player's left and right foot, while 15 designates the approved grip for the brassie shot, and 16 the position of the ball with respect to the stance, the flight of the ball being indicated by the arrow 17 and the path of the club on the back swing by the dotted line 18.

19 designates the approximate position of the brassie at the termination of the up swing and at the point 20 various directions or instructions may be given, which will be useful to the novice in learning the brassie shot.

Generally speaking, the stance, grip and address on the chart 12 for the brassie shot are somewhat similar to the delineations of the corresponding elements for the drive seen on the chart 1, except that the right foot as 14 is advanced a little nearer to the ball 16 and the ball 16 may be a little more in line with the left foot 13 than shown in Figure 1.

It will be understood that the chart 12 seen in Figure 2 may be utilized for instructions for the stance and address for the baffle or spoon shot and if desired for the driving iron and cleek, as the stance and address for these three clubs does not differ greatly from the stance and address for the brassie.

The instruction chart 21 seen in Figure 3 for the midiron shot comprises the outlines 22 and 23 for the left and right foot, the portrayal of the grip, as indicated at 24, and the proper position of the ball with respect to the stance is indicated at 25.

26 designates the arrow indicating the direction of the flight of the ball and the dotted line 27 indicates the approximate path taken by the midiron in the up swing.

28 designates the manner of addressing the ball and 29 represents the position for printed instructions or legends appertaining to the midiron shot.

It will be apparent that the position of the right foot as indicated at 23 is shown as being advanced somewhat towards the ball 25 and the latter is shown to be nearly on a line with the left foot as indicated at 22.

The chart 30 seen in Figure 4 illustrates the emblems or symbols necessary for the full mashie shot, the position of the left and right foot being indicated at 31 and 32, and the proper grip or position of the hands being indicated at 33.

34 designates the position of the ball with respect to the stance, 35 indicates the arrow showing the direction of the flight of the ball and 36 indicates the approximate path

of the travel of the club head on the up swing away from and on the down swing towards the ball.

37 indicates the manner of addressing the ball for the full mashie shot, and at the points 38 instructions or directions may be printed upon the chart for the full mashie shot.

The chart 39 seen in Figure 5 contains the diagrams for learning the mashie approach, the outlines 40 and 41 indicating the positions of the left and right feet of the player.

42 designates the grip for the mashie on the short approach shots and 43 the proper position of the golf ball with respect to the stance.

44 designates an arrow indicative of the flight of the ball and the dotted line 45 indicates the approximate travel of the club head on the upswing from the ball and on the down stroke towards the ball.

46 indicates the manner of addressing the ball for the mashie approach and at the points 47 may be printed legends of instructions for the mashie approach or short approach shots.

It will be evident that in the chart 30, the right foot as indicated at 32 is shown as being advanced towards the ball and the latter is shown as being nearly in line with the position of the left foot, as indicated at 31.

In the chart 39, the right foot as at 41 is shown as being still further advanced towards the golf ball and the latter is shown in this chart as being approximately on a line with the left foot, as indicated at 40.

The chart 48 seen in Figure 6 contains the diagram and instructions or directions for the putt, the stance for the left and right foot being indicated at 49 and 50, the proper grip for the putter is portrayed at 51, the direction of the flight of the ball 53 being indicated by the arrow 52 and the approximate line of travel of the club on the back swing away from the ball 53 being indicated by the dotted line 54, the manner of addressing the ball being indicated at 55 and the instructions for putting may appear at the points 56.

It will be apparent that all our novel instruction charts contain the essentials or fundamentals to enable a novice to acquire the proper form for each shot, since each chart portrays the proper stance, grip, position of the ball and correct address therefor, and in addition the printed directions are at all times staring the novice in the face, so as to enable him to overcome faults to which beginners are liable.

It will of course be understood by those skilled in the art that either of the charts 30 or 39 may be employed for teaching the novice the use of the jigger, the mashie, niblick or any other of the intermediate clubs

frequently employed for the shots intermediate the midiron and the putter, and that any desired character of instructions or directions which we have not undertaken to portray in detail may be printed on each of the charts at the places indicated.

It will be seen from the foregoing that each chart contains diagrams or indicia illustrating the proper position of the feet or stance for each successive shot from the tee to the putting green, the proper position of the hands on the club or grip for each shot, the position of the golf ball with respect to the stance or the player's left foot for each shot, the line of flight or direction of the ball and the line of travel and approximate direction of the club head on the back swing before and after the club head is turned, together with printed instructions for making each shot, with illustrations of the player addressing the ball and at different stages of the swing.

Each chart can be placed on the floor or ground and the requisite amount of time can be devoted to practicing any desired shot, the charts being of such size that the player can place his feet on the spaces indicated and thereby quickly attain the correct position of the body, hands and club, and the correct line of the travel of the club head on the back swing and the follow through, which latter is portrayed by the direction of the arrow on each chart.

In all instances of practicing the shots, according to the charts 1, 12, 21, 30, 39 and 48 the player will observe the specific instructions on each chart and follow the same while adjusting and swinging the clubs.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. An instruction chart for the game of golf, consisting of a base of suitable material on which the user stands adapted to be placed on the floor or ground and having thereon indicia for determining the correct stance of the player and for indicating the correct position of a golf ball with respect to said stance.

2. An instruction chart for the game of golf, consisting of a base on which the user stands adapted to be placed on the floor or ground and having thereon one pair of indicia for determining the correct stance of the player, indicia for indicating the correct position of a golf ball with respect to said stance, and other indicia portraying the correct grip for the club used.

3. An instruction chart for the game of golf, consisting of a base on which the user stands adapted to be placed on the floor or ground and having thereon indicia for determining the correct stance of the player, for indicating the correct position of a golf ball with respect to said stance, for portray-

ing the correct grip for the club used, and other indicia portraying the correct direction of the flight of the ball and the approximate path of the club head towards and away from the ball.

4. An instruction chart for the game of golf, consisting of a base on which the user stands adapted to be placed upon the floor or ground, and having thereon indicia for determining the correct stance of the player, for indicating the correct position of a golf ball with respect to said stance, and a portrayal of the correct manner of addressing said golf ball.

5. A means for teaching the playing of golf comprising a series of bases, of suitable material upon which a player is to

stand one at a time and on which are representations of respectively the correct stance of the player, the correct position of a golf ball with respect to said stance, the correct grip for the club; the correct address for the shot, the correct path for the club head at its point of impact upon the ball, and the correct follow through for the various plays of the game.

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Sept. 15, 1953

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FIG. 1

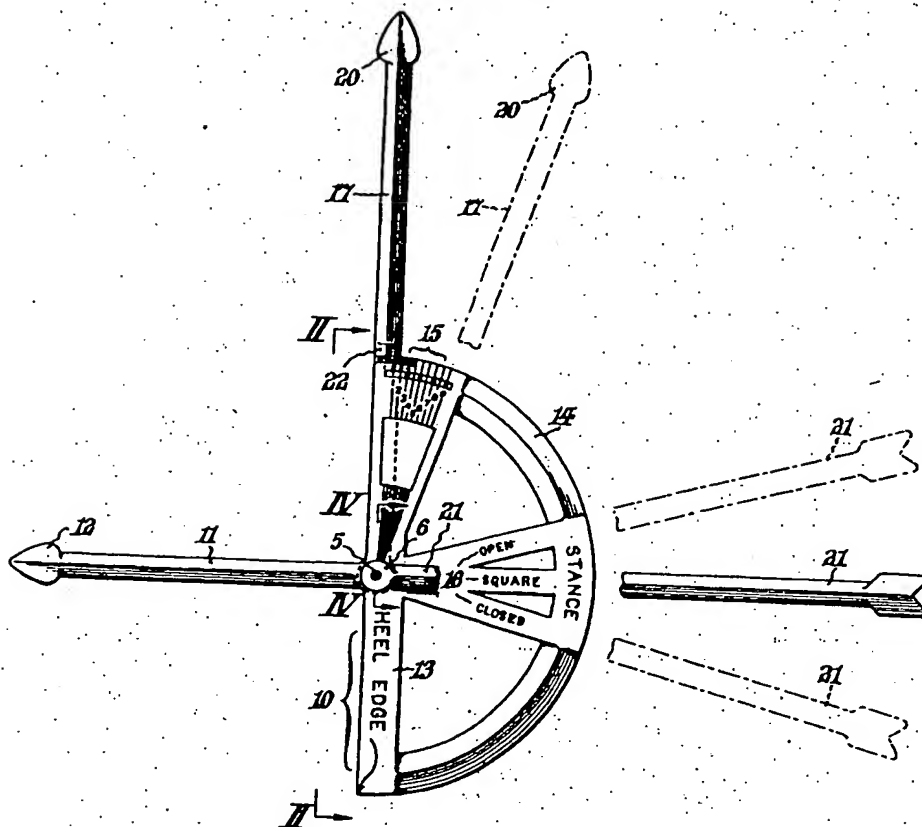


FIG. 2

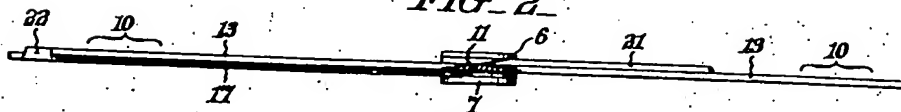


FIG. 3

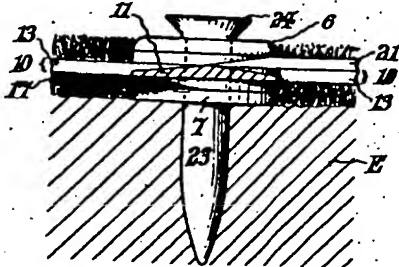
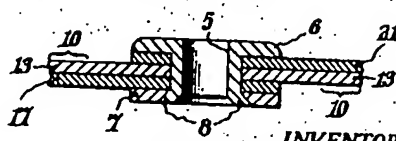


FIG. 4



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2,652,251

GOLF INDICATOR APPARATUS

Alfonso Molinar, Mexico City, Mexico

Application January 4, 1952, Serial No. 264,957

2 Claims. (Cl. 273-35)

1 This invention relates to a device for correcting or improving the stance of a golf player, and more particularly concerns an apparatus for marking the relative positions of a golf ball and the golf player's feet with respect to the direction of intended flight of the golf ball.

It is an object of this invention to provide an improved device for indicating and recording a golfer's stance. Another object is to provide a convenient guide including frictionally adjustable indicator arms for aligning the golf club in proper relation to the feet and ball. Another object is to provide an adjustable device of this character having calibrations indicating the proper change of position of feet and ball for utilizing golf clubs of different sizes and kinds. Another object is to provide a device of this character for controlling the direction and degree of curvature of the ball's flight and thereby correcting a golf player's tendency to hook or slice or guiding the golf player in an intended hook or slice.

Golf devices having direction indicator devices have been intended exclusively for practice purposes heretofore and have not been suitable for both practice and for actual play. Such devices have been cumbersome and heavy and therefore not well adapted to be carried by a golf player and used from stroke to stroke in actual play on a golf course. In this connection it is another object of this invention to provide an apparatus of the character indicated which is readily portable in a golf bag and detachably securable in fixed position to the surface of the golf course.

Other objects and advantages of the invention, including the simplicity and economy of the same, will be further apparent hereinafter, and in the drawings, whereof:

Fig. 1 represents a plan view of a golf indicator device constituting one specific embodiment of this invention.

Fig. 2 represents a front end view partly in section, taken as indicated by the lines and arrows II—II which appear in Fig. 1, with the relative positions of certain of the parts changed.

Fig. 3 represents an enlarged view similar to Fig. 2, showing how the device may be secured to the surface of a golf course, and

Fig. 4 represents a sectional view taken as indicated by the lines and arrows IV—IV which appear in Fig. 1.

In summary, the invention relates to a golf direction and stance indicator comprising a base, a sleeve extending through said base, said sleeve having a bore of sufficient size to accommodate

2 the shaft of a golf tee, a flight direction indicator fixed to said base, and position indicator arms pivoted to said sleeve above said base for indicating the position of the golf ball and the golfer's foot.

Turning now to the specific embodiment of the invention selected for illustration in the drawings, the number 5 designates a sleeve having a circular flange formed integrally at the top thereof. A washer 7 is secured to the bottom of the sleeve 5 and forms a flange similar to the flange 6, extending outwardly of the bore of sleeve 5. The washer 7 is secured in position by the flared portion 8 of the sleeve 5.

The number 10 designates a semi-circular base element to which is affixed a direction indicator arm 11 having an arrow head 12 at its forward end. The base 10 includes a transverse bar 13 having a straight line forward edge which serves to indicate the line along which the heel of the golfer's forward foot should be located. Specifically, for a right handed golfer, it will be understood that the right hand edge of the golfer's left (forward) foot will be disposed against the left hand (forward) edge of the base 10 while the golfer's toe will be placed against the near edge of indicator arm 11. The heel of the golfer's forward foot may be at any point adjacent the bar 13, or beyond its end, depending upon the length of the golfer's foot. But the golfer's foot will in any case be aligned with the forward edge of base 10. A curved bar 14 in the form of a semi-circle is formed integrally with the transverse bar 13. The bars 13, 14 carry the integral plate element 15 which carries markings indicating the proper positions of the parts for using golf clubs of different sizes and kinds. The bars 13, 14 also support three arms 16 which carry markings indicating the proper relative positions of the parts for opening and closing the golfer's stance.

An adjustable indicator arm 17 is pivotally mounted on the sleeve 5 immediately above the washer 7, and in frictional contact therewith. The adjustable indicator arm 17 carries an integral arrow head 20 indicating the proper initial position of the golf ball. It also carries an indicator stud 22 adjacent the markings on the plate element 15. The transverse bar 13 of base 10 is immediately above, and in frictional contact with, the adjustable indicator arm 17. Another adjustable indicator arm 21 is pivotally mounted on the sleeve 5 immediately above the transverse bar 13. Adjustable indicator arm 21 is in frictional contact with the transverse bar 13 and

with the flange 6. The adjustable indicator arm 21 extends rearwardly of the transverse bar 13 and has capacity to swing about the sleeve 5 to indicate the proper position of the rear foot of the golf player. It will be appreciated that the toe of the golfer's rear foot will be disposed against the back end of indicator arm 21, and that it will be disposed at the desired angle with respect to the golfer's front foot. This angle may vary with different golfers or with different stances (closed or open), but in all cases the toe of the rear foot will point at the indicator arm 21 and in many cases it will be substantially perpendicular thereto.

Means are provided for detachably securing the indicator device to the earth or other material comprising the surface of a golf course. It will be observed that the bore of sleeve 5 is of sufficient size to accommodate the shaft 23 of golf tee which has an enlarged head 24 larger than the bore of sleeve 5.

In operation, the golf indicator device is conveniently carried in a golf bag or otherwise from place to place during the course of normal play on a golf course. At each location where a golf stroke is to be played, the device is placed upon the ground and the golf tee shaft 23 driven through the bore of shaft 5 and into the earth E, Fig. 3. The golf indicator device is thereby detachably secured in fixed position to the surface of the golf course. The indicator arms 17, 21, which are frictionally held between the flange 6 and washer 7 by reason of the pressure created by the flared portion 8 of sleeve 5, are adjusted in accordance with the character of the golf club to be used and the nature of the stance desired. The golf ball is placed opposite the tip of arrow head 20, the golfer's forward foot is placed with the right side edge of the heel in line with the left side edge of the transverse bar 13, and the golfer's rear foot is placed immediately adjacent the indicator at the rear end of indicator arm 21. After completing the stroke, the golf player may remove the indicator device from the surface of the golf course by lifting it together with the golf tee.

It will be appreciated that, although the invention has been described in detail with reference to one specific embodiment thereof, it will be readily apparent to those skilled in the art that the mechanical elements of the device may be varied and that equivalent mechanisms may be employed for accomplishing the same result, all within the scope of the invention. All such changes, including reversals of parts and the use of certain features independently of other features, are considered to be within the spirit of the invention as defined in the annexed claims.

Having thus described my invention, I claim:

1. A golf direction and stance indicator com-

prising a sleeve having a substantially vertical bore, substantially horizontal flanges at the top and bottom of said sleeve, said flanges extending outwardly of said bore, a lower indicator arm pivotally mounted on said sleeve in frictional contact with the flanges at the bottom of said sleeve, a base on said sleeve above said lower indicator arm, a flight indicator fixed to said base, and an upper indicator arm pivotally mounted on said sleeve in frictional contact with the flanges at the top of said sleeve, said base being formed integrally with said flight indicator and said base having a straight forward edge that extends perpendicular to said flight indicator and coacts with the flight indicator to fix the position and direction of the golfer's forward foot.

2. A golf direction and stance indicator comprising a sleeve having a substantially vertical bore, substantially horizontal flanges at the top and bottom of said sleeve, said flanges extending outwardly of said bore, a lower indicator arm pivotally mounted on said sleeve in frictional contact with the flanges at the bottom of said sleeve, a semi-circular base plate on said sleeve above said lower indicator arm, said base plate having a straight-line forward edge serving as an indicator of the proper position of the heel of the golfer's forward foot, an arm fixed to said base plate at a fixed angle to said forward edge and serving as an indicator of the direction of flight of the golf ball, and an upper indicator arm pivotally mounted on said sleeve in frictional contact with said base plate and with the flanges at the top of said sleeve, said base plate carrying a visible system of identifying marks arranged to indicate the proper positions of one of said indicator arms to indicate the different locations of a golf ball for executing strokes with different clubs, and said base plate also carrying a separate system of identifying marks arranged to indicate the proper positions of the other of said indicator arms to indicate the proper positions of the golfer's rear foot to open and close the golfer's stance, both said indicator arms being pivoted about a common center.

ALFONSO MOLINAR.

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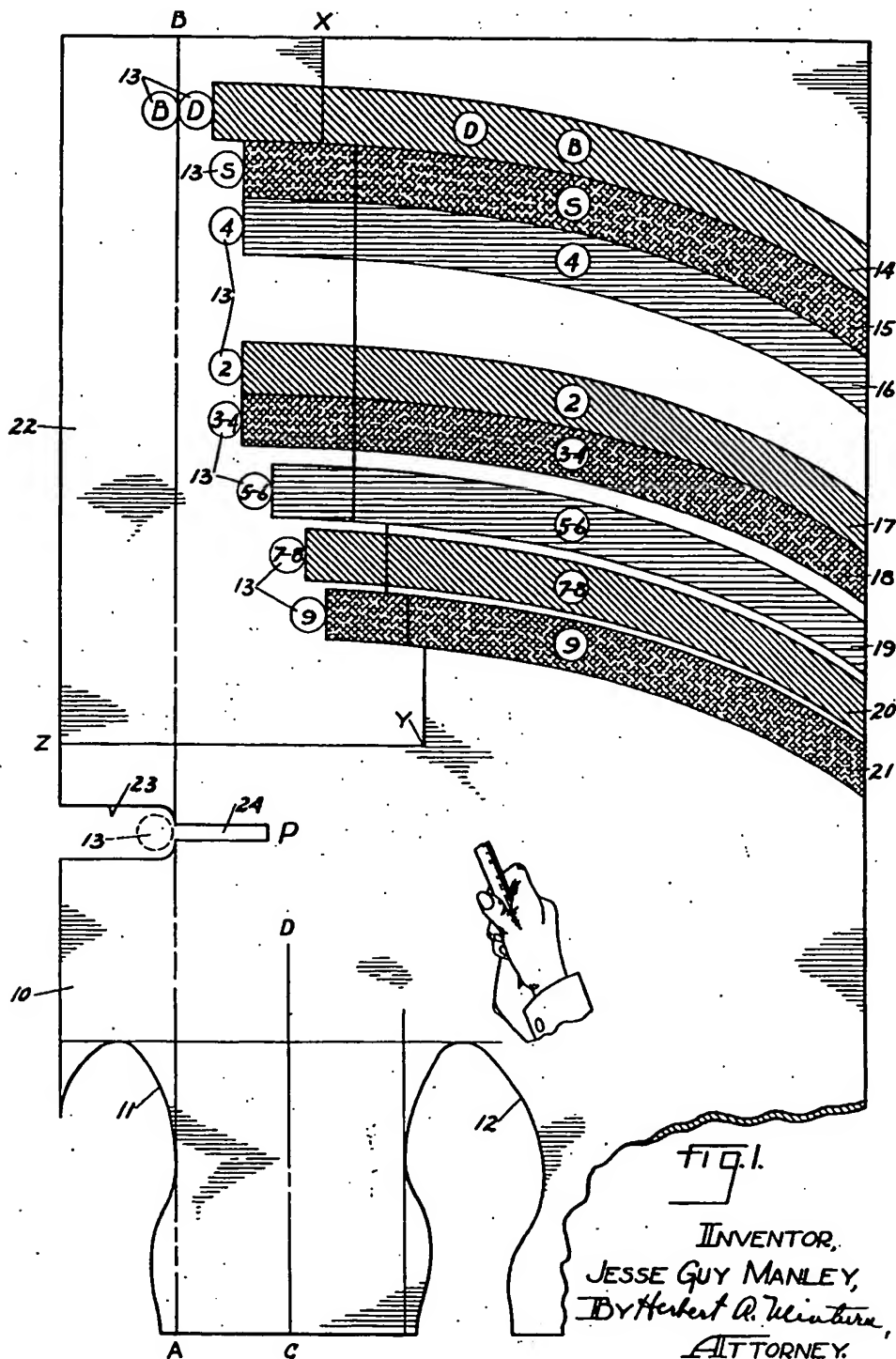
J. G. MANLEY

2,707,638

INDIVIDUALIZED GOLFER'S CHART

Filed Nov. 5, 1952

2 Sheets-Sheet 1



May 3, 1955

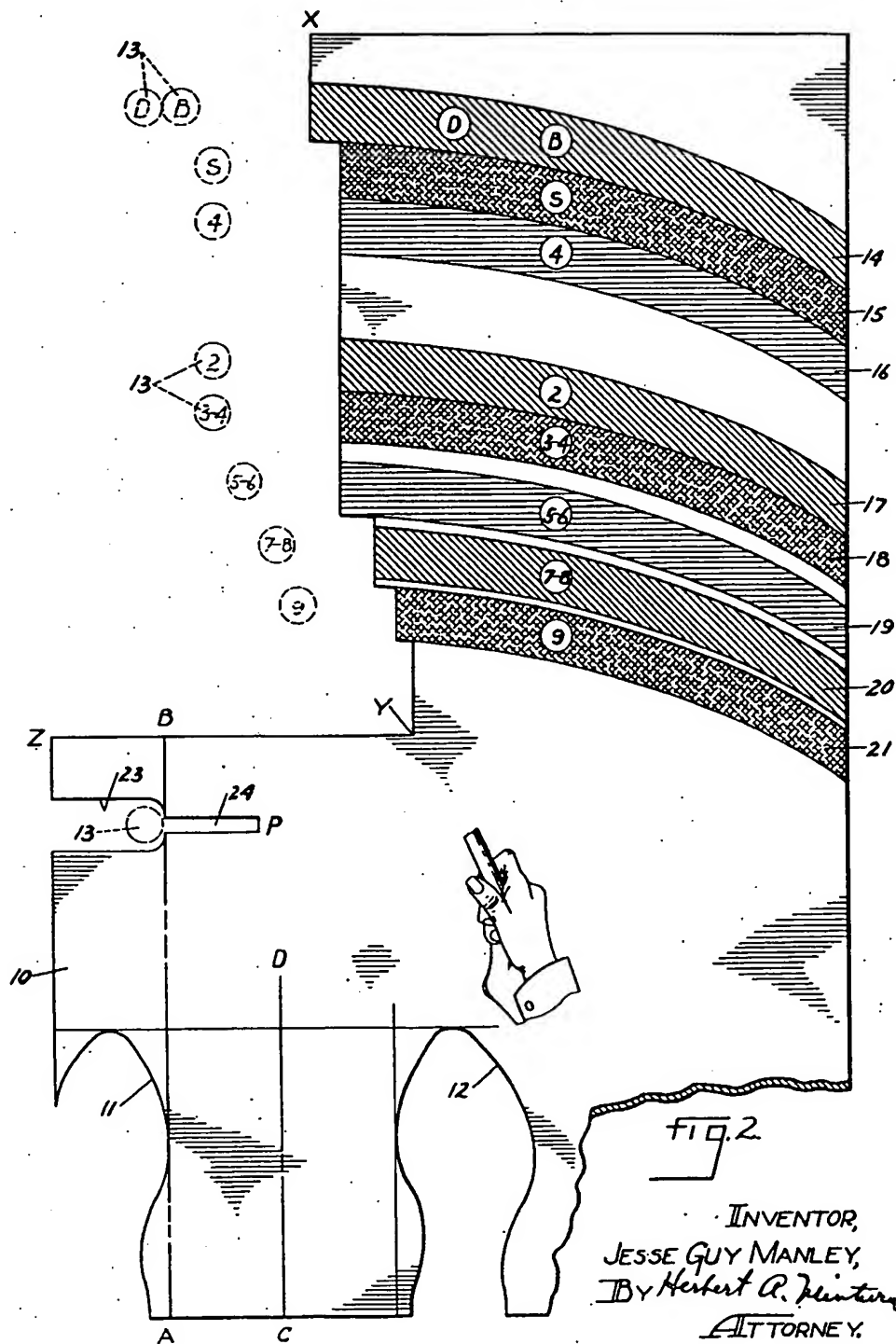
J. G. MANLEY

2,707,638

INDIVIDUALIZED GOLFER'S CHART

Filed Nov. 5, 1952

2 Sheets-Sheet 2



1

2,707,638

INDIVIDUALIZED GOLFER'S CHART

Jesse Gay Manley, Danville, Ill.

Application November 5, 1952, Serial No. 318,904

5 Claims. (Cl. 273-187)

This invention relates to a chart which is designed to meet the individual characteristics of a golfer in order that he may improve his game. There will be those days in which the golfer will find that he is playing an unusually good game as compared to his past performance, and then several days later when he attempts to repeat that excellent performance, he finds out that everything seems to be wrong. Then he looks up the "pro" and tries to find out what is wrong.

The "pro" is generally a pretty busy man, and while he may attempt to give lessons and instructions to those desiring them, nevertheless the same difficulty reoccurs from time to time since one's memory is not infallible, and instructions are easily forgotten. The present invention is intended to overcome these difficulties in that the individual golfer may have a chart prepared for his own use in accordance with his own individual characteristics so that he may not only achieve the desired uniformity of swing of the heads of the various clubs, but he may have a record in a permanent nature which he may employ for winter practice indoors as well as which he may employ for outdoor usage.

One of the highly important factors is that the club approach the ball in a correct line in order to secure the proper direction of flight of the ball.

The "pro" will study the individual golfer, and then prepare for him a chart substantially as shown in the accompanying drawings, in which:

Fig. 1 is a view of the completed chart, primarily for indoor usage; and

Fig. 2 is a top plan view of the chart with a section thereof removed such as would be the case in outdoor usage.

The individualities of the golfer will be studied, and then when the "pro" considers that the golfer has approached that state wherein a chart is ready to be prepared, a more or less rectangular piece of board, generally designated by the numeral 10, will be laid upon the floor or the ground. This board may be made out of any suitable material, such as plywood, fiber board, and the like, the essential characteristic being that the board will remain in a flat condition throughout a period of long usage. Also it is intended that the board be of such area that it will contain the desired data.

The player stands on one corner of the board 10, herein shown at the lower left hand corner, to have his feet apart for the normal stance, that is what is normal for him, and then a line is drawn around the shoe sole, and the board is cut out to give the outlines 11 and 12 for the left and right feet respectively.

A line AB is drawn across the board 10 tangent to the inside of the outline 11 and parallel to the center line CD between the cutouts 11 and 12.

The player will then take the driver or the brassie and swing the head through the line of approach which he would normally use in addressing the ball 13 positioned at line AB. When the "pro" is satisfied that this is the line wherein that particular individual will

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achieve his best result, he will place on the board 10 the arcuate area 14 preferably in some one color, herein indicated as being the color green. The particular color selected has no significance other than to identify that particular path of travel of the head of the particular club, that is the driver or the brassie, in its approach to the ball 13. Then the same procedure is employed to determine on the chart 10 the arcuate area within which the head of the spoon will travel and also the head of the four wood club. These particular areas are herein indicated to be in the colors of orange and blue respectively, designated by the numerals 15 and 16.

The same procedure is followed throughout the swinging of the other clubs, such as for the iron number two, following the area 17, again shown in green; clubs three and four again shown in the color orange and designated by the numeral 18; the clubs five and six swinging through the arcuate area 19 and designated to be in the color blue; the clubs seven and eight swinging through the area 20 indicated by the color green; and finally the number nine club swing path area 21 herein shown again in the color orange. The spacing apart of these various swing paths 14-21 is determined of course by the variations in lengths of the shafts of the clubs. Also it is to be noted that at the left-hand end of each of the swing paths, the ball 13 is set to the right somewhat of the line AB, generally coming between the line AB and what would be a continuation of the center line CD.

Now with these paths of swing approaching the ball to be driven, such paths being determined by the "pro" in observing the player as to his best lines of approach, will thus become a permanent record on the board 10 so that the player can return to this board time after time to determine what may be wrong with his game when the results are not uniform. With this chart, the player can practice over and over again swinging the clubs along those paths in his approach to the ball in order to perfect his control to maintain the club heads in those respective paths. Thus, the chart gives the player something tangible to take and use so that he does not have to depend entirely upon the mere verbal instructions of the "pro" and try to remember just what he did last time when he gets into trouble. Instead, he can use the chart to correct his errors.

In practicing out on the turf, the chart 10 is altered somewhat preferably by removing a section generally designated by the numeral 22 from the board 10. This section 22 is permanently severed from the board 10 on an irregular line XY stepped to the right in conformity to the ends of the various paths of swing. Then from the point Y, which is below the path of the number nine club, the section 22 is cut from the board 10 on a horizontal line or rather a line normal to the line AB from Y to Z.

As indicated in Fig. 1, the terminal left hand ends of the various swing paths 14-21 terminate in stepped relations to the right depending much upon the particular club used. This variation will range approximately from the line AB to the line CD. This spacing may vary somewhat depending upon the individual and his own height.

Returning again to the use of the chart when practice is being made in the open on the turf, this section 22 being removed cuts off the lines of swing, and therefore the ball 13 is dropped correspondingly at the end of each swing area which is selected a distance of approximately three to four inches to the length thereof so the ball will be then positioned almost in exact conformity to the placing of the ball at the ends of those lines of swing when the section 22 is still maintained as a part of the overall chart.

In all instances, it is to be understood that a player

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will swing the club head around about ninety degrees from the ball to his side substantially horizontally to intersect a line through his heel perpendicular to the line C—D when the club head would be lifted upwardly. Then the swing is reversed to bring the club down and around into the respective paths 14—21, depending upon the club used.

Then for practice in putting, the ball 13 may be positioned, Fig. 1, at the right hand end of a slot 23 which is cut in the board 10 back to the line AB, a narrow slot 24 continuous from the wider slot 23 in order to provide clearance for the putter. Not only does the slot 24 provide that clearance, but it also serves as a straight line path of swing or travel of the putter in its approach of the ball 13.

Thus, a chart may be prepared for each individual golfer, in accordance with the characteristics of his swinging of the club heads for his own best results, and further provides a chart which will permit the individual to achieve a uniform swinging of the clubs in order to maintain his best results. This chart provides a permanent record to which the individual player may return time and time again to correct his faults as they may develop and thus have a basis for self-correction without having to resort continuously to a "pro" or to trying to rack his own memory to determine what he has been doing wrong when his game is "off."

While the description has been made in reference to a right hand player, it is obvious that the chart may be reversed end for end for a left handed player, and therefore the directions of "left" and "right" as defined in the claims are to be interpreted accordingly.

Therefore, it is to be seen that I have provided a very simple means for aiding a golfer in improving and maintaining his form in the game of golf, and while structural variations may be employed without departing from the spirit of the invention, I do not desire to be limited to that precise form which has been described, beyond the limitations which may be imposed by the following claims.

I claim:

1. A chart of a golf club swing paths for an individual player which comprises a surface having locating means for each of the player's feet in his normal stance; club head swing path areas defined on the surface corresponding to the player's swing of the club heads in his characteristic swing of approach to the golf ball; said paths terminating by left hand ends defined on the chart at the desirable ball teeing position for each club; said positions being at and to the right of a line extending normally from the player tangent to the left foot inside line therealong; said swing path areas being lengths defined by the swing of the club heads from the right edge of said surface immediately approaching the ball to be driven to the ball teeing position in each instance, and further being spaced from an outermost path for the driver and brassie clubs, inwardly toward the player in consecutive paths for the spoon, the four wood, and the irons numbers 2, 3 and 4 in one path, 5 and 6 in the next path, 7 and 8 in the next path thereafter, and 9 in the innermost path; each of said paths carrying an identifying marking.

2. A chart of golf club swing paths for an individual player which comprises a surface having locating means for each of the player's feet in his normal stance; club head swing path areas defined on the surface corresponding to the player's swing of the club heads in his characteristic swing of approach to the golf ball; said paths terminating by left hand ends defined on the chart at the desirable ball teeing position for each club, said positions being at and to the right of a line extending normally from the player tangent to the left foot inside line therealong; said swing path areas being lengths defined by the swing of the club heads from the right edge of said surface immediately approaching the ball to be driven

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en to the ball teeing position in each instance, and further being spaced from an outermost path for the driver and brassie clubs, inwardly toward the player in consecutive paths for the spoon, the four wood, and the irons numbers 2, 3 and 4 in one path, 5 and 6 in the next path, 7 and 8 in the next path thereafter, and 9 in the innermost path; each of said paths carrying an identifying marking; said chart having an outer left hand section divided from the remainder of the chart along a line across left hand end portions of said paths, said line being stepped to the right from the path ends distances to permit a ball to be placed to the left of the said section line upon removal of the section in approximately the same ball positions indicated on the section.

3. A chart of golf club swing paths for an individual player which comprises a surface having locating means for each of the player's feet in his normal stance; club head swing path areas defined on the surface corresponding to the player's swing of the club heads in his characteristic swing of approach to the golf ball; said paths terminating by left hand ends defined on the chart at the desirable ball teeing position for each club, said positions being at and to the right of a line extending normally from the player tangent to the left foot inside line therealong; said swing path areas being lengths defined by the swing of the club heads from the right edge of said surface immediately approaching the ball to be driven to the ball teeing position in each instance, and further being spaced from an outermost path for the driver and brassie clubs, inwardly toward the player in consecutive paths for the spoon, the four wood, and the irons numbers 2, 3 and 4 in one path, 5 and 6 in the next path, 7 and 8 in the next path thereafter, and 9 in the innermost path; each of said paths carrying an identifying marking; the left hand ends of the spoon, the four wood, and number 2-6 iron club paths terminating in a common line parallel to said line located to the right of the terminal left end of the driver and brassie swing path; the 7-8 iron club path left end terminating to the right of said common line; and the 9 iron club path terminating still further to the right of the left terminal end of said 7-8 club path end.

4. A chart of golf club swing paths for an individual player which comprises a surface having one position locating means for each of the player's feet in his normal stance; club head swing path areas defined on said surface corresponding to the player's swing of the club heads in his characteristic swing of approach to the golf ball and extending from the right hand edge of the surface, said paths terminating by left hand ends defined on the surface at the desirable ball teeing position for each club, said positions being at and to the right of a line extending normally from the player tangent to the left foot inside line therealong; a ball putting position indicated on said surface on the left hand side of said line; and a rectilinear path area leading from right to left perpendicular to and from the right hand side of said line to said last ball indication position.

5. A chart of golf club swing paths for an individual player which comprises a surface having locating means for each of the player's feet in his normal stance; club head swing path areas defined on the surface corresponding to the player's swing of the club heads in his characteristic swing of approach to the golf ball; said paths terminating by left hand ends defined on the chart at the desirable ball teeing position for each club, said positions being at and to the right of a line extending normally from the player tangent to the left foot inside line therealong; said swing path areas being lengths defined by the swing of the club heads from the right edge of said surface immediately approaching the ball to be driven to the ball teeing position in each instance, and further being spaced from an outermost path for the driver and brassie clubs, inwardly toward the player in consecutive paths for the spoon, the four wood, and the

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irons numbers 2, 3, and 4 in one path, 5 and 6 in the next path, 7 and 8 in the next path thereafter, and 9 in the innermost path; each of said paths carrying an identifying marking; the left hand ends of the spoon, the four wood, and number 2-6 iron club paths terminating in a common line parallel to said line located to the right of the terminal left end of the driver and brassie swing path; the 7-8 iron club path left end terminating to the right of said common line; and the 9 iron club path terminating still further to the right of the left terminal end 10

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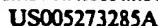
of said 7-8 club path end; and a left hand outer and upper portion of said chart beyond said foot positions being separate from the remainder of the chart along lines drawn at substantially equal distances from said ball teeing positions.

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[11] Patent Number: 5,273,285

[45] **Date of Patent:** Dec. 28, 1993

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Primary Examiner—George J. Marlo.

[57] **ABSTRACT**

A golf ball teeing mat comprising:

- a. a resilient horizontally disposed sheet,**
- b. a resilient cushion, positioned under said sheet, generally continuous in the direction of hitting,**
- c. an artificial turf affixed atop said sheet, said turf generally coextensive with said sheet, an adhesive forming a bond between said sheet and said turf, said bond having no substantial gaps,**

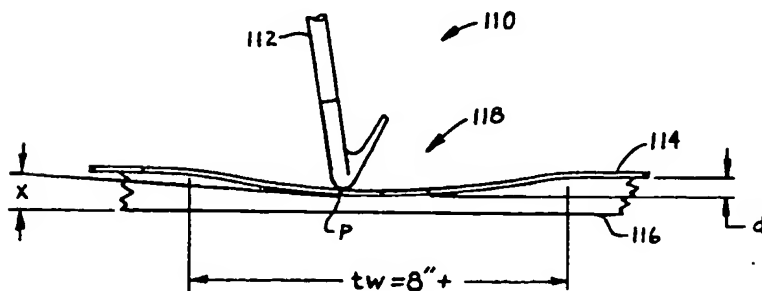
d. a concave trough formed by manual flexing of said mat, said trough having a first point where said sheet descends below horizontal and a second point where said sheet returns to horizontal, said trough having a distance between said first and second points of 8 inches or greater, said sheet being stiff enough and said cushion being soft enough to create said trough at generally any location along the upper surface of the mat sufficiently spaced from the edges thereof to permit the formation of the trough.

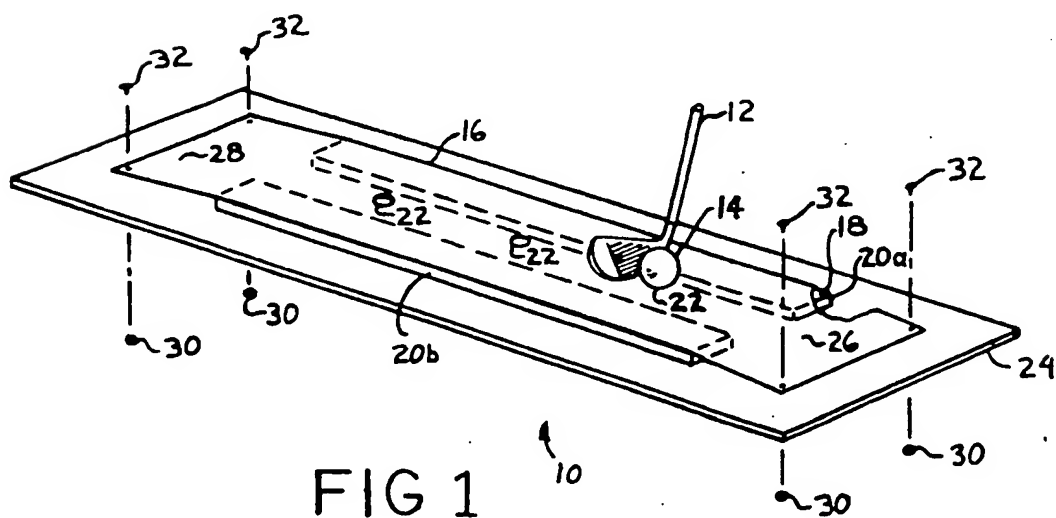
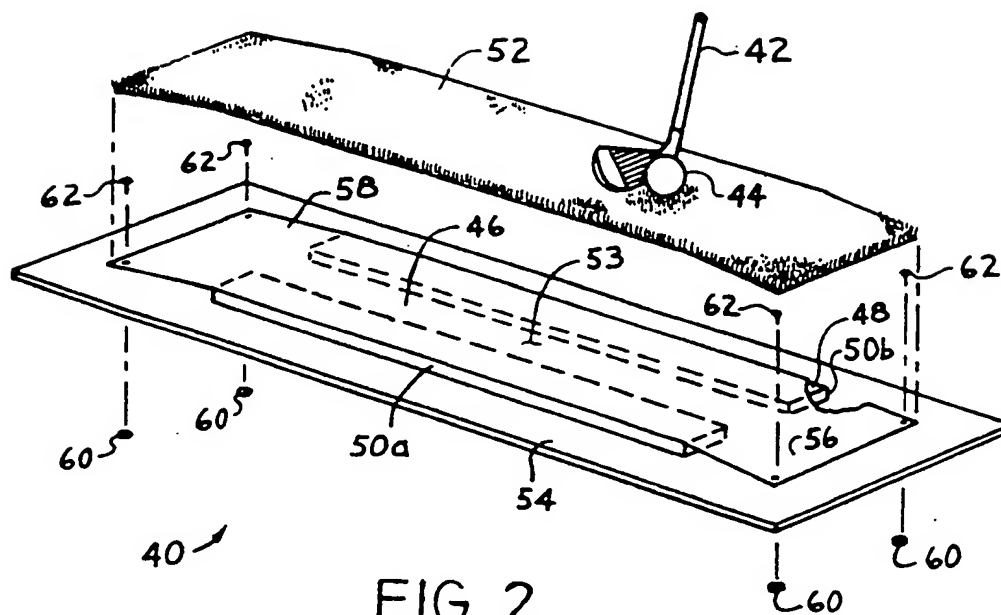
6 Claims, 2 Drawing Sheets

6 Claims, 2 Drawing Sheets

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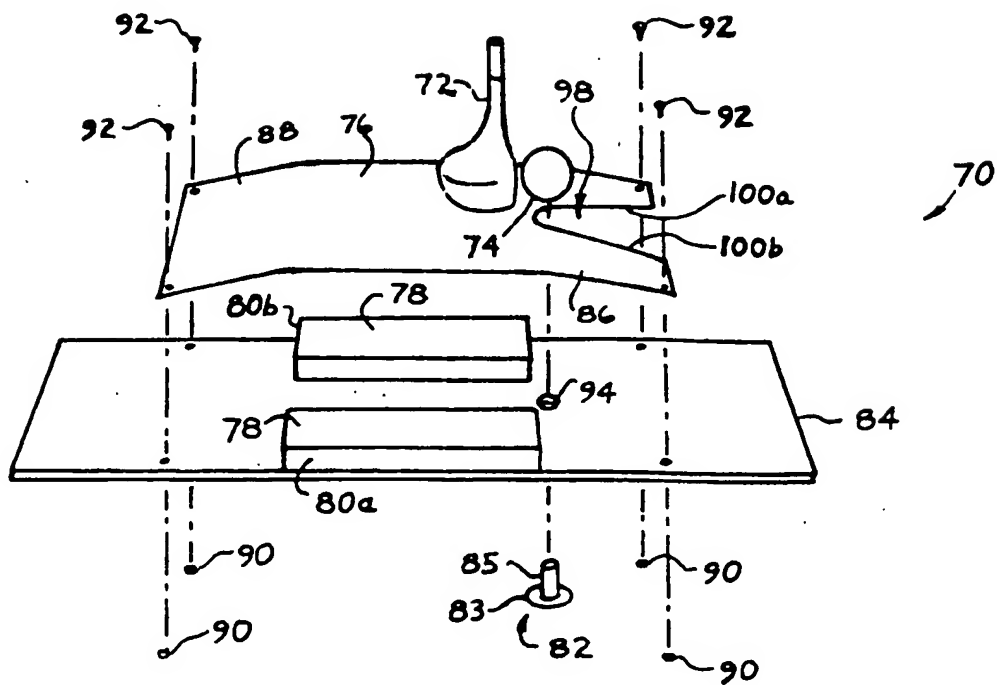


FIG 3

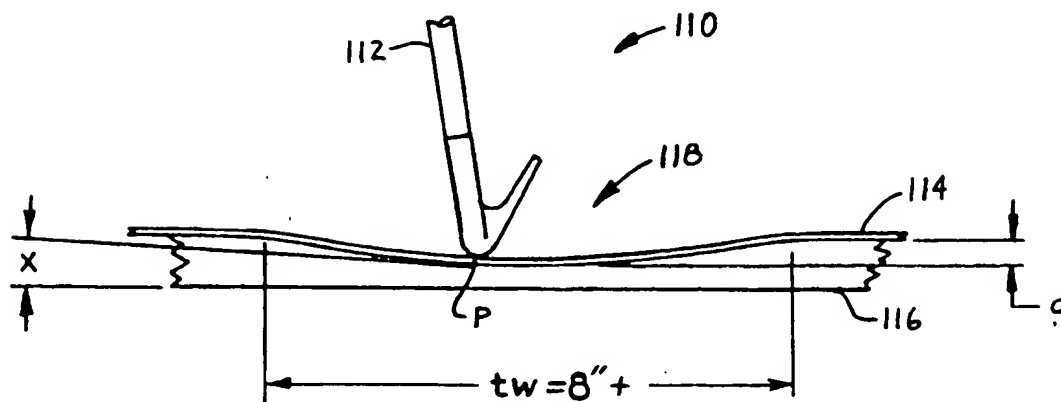


FIG 4

GOLF TEEING MAT

This is a continuation-in-part of Ser. No. 592,123 filed Oct. 3, 1990 (now abandoned).

BACKGROUND

1. Field of the Invention

This invention relates generally to golf, specifically to mats which are used for teeing golf balls.

2. Description of Prior Art

Golf balls are ordinarily hit off grass turf, but during practice at the driving range and sometimes on the golf course when turf conditions are bad it is common to hit balls from a mat. Golf clubs scrape or cut turf from the ground and the golfer's feet destroy the turf when the same spot is used over and over. Consequently, small or heavily-used driving ranges employ mats to provide hitting and standing surfaces that withstand concentrated use.

Some mats are only for standing on—stance mats—while others are for club contact—teeing mats. Some serve both functions.

Heretofore, mats have been plagued by a number of problems. Some mats snag and decelerate a clubhead to an unacceptable degree, even completely stopping a clubhead. This sometimes causes injury to the golfer. The cause of snagging is not today's short-bristled artificial turf per se, but the way it is mounted and the way it delaminates. When artificial turf delaminates or separates from the layer below it, it can wrinkle in front of an impacting clubhead and snag the clubhead. A strong blow eventually rips the delaminated portion. This occurs on the large mats that are popular today.

Another problem is bouncing of the clubhead off the mat. Popular mats have no cushioning or a very high spring rate of cushioning. On real turf, a clubhead cuts through the grass and soil. The clubhead is supposed to strike the turf after hitting the ball. Mats bounce the clubhead when the golfer swings with the downward stroke used on real turf. Consequently, golfers often adjust their swings to give a glancing blow to the mat instead of hitting down into it. This adjusted swing is not providing practice of the swing that most golfers want to use on the course, nor is the adjusted swing easy to produce. To avoid contact with the mat, overadjustment of the swing leads to millions of ruined shots and damaged balls where the sharp lower edge of the clubhead hits the ball first. Moreover, if a clubhead hits behind the ball on real turf, the golfer is penalized by loss of distance and poor contact with the ball. On a mat, a bounce of the clubhead off the mat behind the ball can result in a solid hit without the golfer's awareness of the bounce. If this mistake recurs without correction, the golfer may be unhappily surprised at the next use of real turf.

On driving ranges today, one can find basically two kinds of mats: One, a small uncushioned teeing mat of artificial turf bonded into a hard thin rubber casting which is in turn cradled in a larger hard thin rubber casting; two, a plain large mat, used for both teeing and standing, made of artificial turf with about 1.9 cm ($\frac{3}{4}$ inch) of dense foam (having a 50% compression deflection of around 700 to 1400 grams/sq. cm (10 to 20 Lbs/psi)) bonded under it, with a net or scrim interface bonded between the two layers. A large plain mat with cushioning deflects perhaps 0.25 cm (0.1 inch) under a weight of 5.45 kilograms (12 lbs). A small uncushioned

mat with a rubber base virtually does not deflect (except among the bristles of its artificial turf). Both types bounce a descending clubhead, and both delaminate. The large cushioned mats delaminate in spot after spot, wrinkle, snag the clubhead, and soon rip on a regular schedule.

The large mats have a special undesirable feature. Even when hitting from a spot that has not yet delaminated, a very short-lived but intense deceleration of the clubhead takes place when the clubhead tries to descend below the bristle level of the mat. This deceleration not only feels unnatural and wears out the mat, it also masks the feeling of the ball compressing against the clubface, thereby reducing the golfer's pleasure and feedback regarding solidity of the hit.

Mats usually have a hole for a common rubber tee to be inserted from below and on which a ball is placed so that a special shot, the drive, may be made. The rubber tee elevates the ball above the mat surface. Rubber tees wear too quickly because they get pinched against the mat.

Golfers consistently berate golf practice mats. Driving range operators are eager to have more durable and/or less expensive mats.

OBJECTS AND ADVANTAGES

Accordingly, several objects and advantages of the present invention are to provide a golf practice teeing mat:

- (a) with a non-snagging hitting surface that does not decelerate the clubhead excessively, risking injury and damage;
- (b) whose hitting surface deflects enough to allow the clubhead to move in a downward trajectory; it does not bounce the clubhead.
- (c) which does not mask the feel of the ball compressing on the clubface.
- (d) which does not rip or deform before it is otherwise worn out; in other words it does not delaminate.
- (e) whose worn parts can easily be replaced.
- (f) which is more cost effective than other mats.
- (g) which does not pinch or destroy common rubber tees.

Further objects and advantages include providing a golf teeing mat which can be used for left- or right-handed golfers. Still further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

DRAWING FIGURES

The following figures illustrate various embodiments and features of the present invention.

FIG. 1 shows a perspective view of a turfless golf teeing mat 10.

FIG. 2 shows an exploded perspective view of a golf teeing mat 40 with artificial turf.

FIG. 3 shows an exploded perspective view of a turfless mat 70 for driving off a rubber tee.

FIG. 4 shows a side view of a schematic teeing mat 110 demonstrating deflection of the mat under impact.

LIST OF REFERENCE NUMERALS

FIG. 1

10 teeing mat	12 iron club
14 golf ball	16 sheet
18 adhesive	20a and 20b cushions
22 ball holders	24 base

-continued

26 first slope	28 second slope	
30 nuts	32 bolts	
FIG. 2		
40 teeing mat	42 iron club	
44 golf ball	46 sheet	
48 cushion adhesive	50a and 50b cushions	
52 artificial turf	53 turf adhesive	54 base
56 first slope	58 second slope	
60 nuts	62 bolts	
FIG. 3		
70 teeing mat	72 wood club	
74 golf ball	76 sheet	
78 adhesive	80a and b cushions	
82 rubber tee	83 rubber tee base	
84 base	85 stem	
86 first slope	88 second slope	
90 nuts	92 bolts	
94 round hole	98 notch	
100a & b straight sides		
FIG. 4		
110 schematic teeing mat	112 clubhead	
114 sheet	116 cushion	
118 trough	P club contact point	
tw trough width	d depth of deflection	
x angle		

DESCRIPTION

FIG. 1—Description of Turfless Teeing Mat

Looking at FIG. 1, a teeing mat 10 of the present invention has the lower portion of a golf club iron 12 resting at address position behind a golf ball 14. Ball 14 and iron 12 rest on sheet 16 which in turn rests upon and is bonded to a pair of cushions 20a and 20b by an adhesive 18.

Sheet 16 is a thin 0.20 cm (0.080 inch), tough, resilient, abrasion-resistant, rectangular piece of plastic such as polycarbonate with length 81 cm (32 inches) and width 17 cm (6.75 inches). The flexural modulus of a common sign grade polycarbonate used for sheet 16 is 0.067 kg/sq. cm (345,000 psi) (ASTM D-790) according to the manufacturer. The rigidity of sheet 16 is a product of the flexural modulus and the area moment of inertia. The area moment of inertia is thickness cubed times width divided by 12. The rigidity is about 100 Lbs.-inches squared. General purpose high-impact ABS (acrylonitrilebutadiene-styrene) may also be used. Although ABS is not as tough, it costs less and withstands all but extreme abuse. Other plastics will no doubt work as well, if properly chosen.

The long ends of sheet 16 are bent downward at about 8 degrees from horizontal to form a first slope 26 and a second slope 28. The slopes are formed with about a 2.54 cm (1 inch) radius beginning at a distance of 10 cm (4 inches) from the respective ends. A horizontal portion of sheet 16 remains between the slopes.

Cushions 20a and 20b are stripes 1.3 cm ($\frac{1}{2}$ inch) thick, 61 cm (24 inches) long, and 5 cm (2 inches) wide. They are bonded under the horizontal portion of sheet 16 flush with the longitudinal edges, leaving a longitudinal center gap between the cushions. The cushions are composed of a flexible open-cell resin, such as polyurethane foam. The density of the foam is low (17 kg/cu. meter, 1.06 Lbs./cu. ft.). The pressure required to compress this foam to 50% of its resting height after about 0.5 seconds of application is 23 grams/sq cm (0.33 lbs/sq in). Other types of foam with similar characteristics may be used. Polyurethane foam is economical and effective but for outdoor use needs a coating of paint to protect exposed areas from ultraviolet light.

Sheet 16 and cushions 20a and 20b rest upon a rubber base 24. The cushions rest unbonded against rubber base 24. Sheet 16, being smaller than base 24, is centered upon base 24. Base 24 is a 0.63 cm ($\frac{1}{4}$ inch) thick rectangular sheet of rubber 28 cm (11 inches) by 91 cm (36 inches). Base 24 rests on the ground or other provided surface. Base 24 is cut from floor covering material which has a corrugated surface placed facing down. The corrugations run transversely across mat 10 rather than lengthwise on the line to the target.

Sheet 16 is fastened to base 24 with nuts 30 and bolts 32, one of each in each corner of sheet 16. Bolt 32 is a flathead bolt whose head rests in a countersunk hole in sheet 16. Nut 30 is installed from below.

Ball holders 22 are provided to position a golf ball on sheet 16 prior to striking with iron 12. The ball holder is a round hole 1.6 cm (0.62 inch) in diameter which is cut or thermoformed and which either goes through sheet 16 or deeply enough into sheet 16 to clear the golf ball's bottom surface. Three such ball holders are located centrally on the sheet at 15 cm (6 inch) intervals. Ball 14 is shown sitting in one such ball holder.

FIG. 2—Description of Teeing Mat with Artificial Turf

As shown in FIG. 2, teeing mat 40 is basically the same as teeing mat 10 except for the addition of artificial turf and the absence of ball holders on the sheet. The rubber base, cushions, and fasteners are identical.

An iron club 42 and golf ball 44 are shown in address position on an artificial turf 52 which is bonded by an adhesive 53 to a sheet 46.

Artificial turf 52 is about 1.3 cm (0.5 inch) thick with rectangular dimensions matching sheet 46. It is a flexible plastic carpet made with a woven, knitted, tufted or other construction and densely packed green bristles. One manufacturer is Controlled Products in Dalton, Ga.

Turf adhesive 53 bonds the turf to sheet 46. An adhesive recommended by one skilled in the art of specifying adhesives may be tested and used. Bonding between the turf and the sheet should be complete without gaps in coverage.

Sheet 46 has the size and shape of sheet 16. It may be made from general purpose ABS with a nominal 3/32 inch (0.24 cm) thickness. General purpose ABS has a "hair-cell" or textured finish on one side which is placed facing downward to provide a smooth surface on top for bonding to turf 52. This ABS has a flexural modulus of 0.07 kg/sq. cm at 23 deg. C. (366,000 psi, 73 deg. F., ASTM D790-68T) according to the manufacturer. The rigidity of sheet 46 is 165 Lb.-inches squared.

Sheet 46 has a first slope 56 and a second slope 58 which are the same size and shape as the slopes of mat 10. Cushions 50a and b have the same size, specification, and location as those of mat 10 and are bonded by a cushion adhesive 48.

Nuts 60 and flathead bolts 62 are used to fasten the corners of sheet 46 to a rubber base 54 in the same fashion as those of mat 10. The bolt heads are hidden under turf 52.

FIG. 3—Description of Turfless Driving Mat

FIG. 3 illustrates a turfless driving teeing mat 70 which is used to drive golf balls off a common driving range rubber tee 82 installed in a hole in the mat.

A wood club 72 is shown in hitting position behind a golf ball 74. Ball 74 rests on rubber tee 82 whose stem extends above a sheet 76.

Sheet 76 is a rectangular polycarbonate sheet 41 cm (16 inches) long by 15 cm (6 inches) wide of the same polycarbonate material used in mat 10.

A pair of cushions 80a and b support sheet 76. The cushions are made of polyurethane foam with a density of 37 kg/cu. meter (2.3 Lbs./cu. foot), which is higher than that of mats 10 and 40. This foam requires a correspondingly higher pressure of 330 g/sq in or 0.72 lb/sq in to compress to 50% of its resting height. The cushions are 2.5 cm (1.0 inch) thick and 5 cm (2 inches) wide, and are centered under the sides of sheet 76 between a first bevel 86 and second bevel 88 formed at bends initiated 10 cm (4 inches) from each end of sheet 46.

Sheet 76 and cushions 80a and b are centered upon a rubber base 84 that is 24 inches long by 6 inches wide. The 0.25 inch thickness and corrugated bottom of base 84 are the same as in the previous mats.

An adhesive 78 bonds the cushions to sheet 76.

The corners of sheet 76 are fastened to base 84 by flathead bolts 92 installed from above and nuts 90 installed from below.

Rubber tee 82 is centered about 10 cm (4 inches) from the front edge of sheet 76. Rubber tee 82 has a rubber tee base 83 and a stem 85. Tee base 83 is located under mat base 84. Stem 85 extends upward through a round clearance hole 94 in base 84. Stem 85 then passes between cushions 80a and b, and then through the narrow end of a V-shaped notch 98 cut or formed in sheet 76. Notch 98 leaves some clearance around tee stem 85. The notch has sides 100a and b which diverge from each other at about 30 degrees and continue to the front edge of sheet 76.

FIG. 4—Description of Schematic Teeing Mat

FIG. 4 shows a side view of a schematic teeing mat 110 to indicate how mats 10, 40, and 70 flex during impact.

Mat 110 represents a typical appearance of a sheet 114 and a cushion 116 at one position during an impact with a clubhead 112 which is moving from right to left. The clubhead and sheet contact each other at point P.

A concave trough 118 is formed by the impact of clubhead 112. Trough 118 is oriented such that its deepest portion runs transversely to the direction of clubhead motion. The width of trough 118 is indicated by trough width tw, which runs between the top edges of the trough, where the trough meets the horizontal part of the sheet. A static trough width can be measured by manually deflecting the mat and noting the trough edges. Actual tw during impact may vary due to inertia of the moving materials.

The depth of trough 118 is indicated by a deflection d. d is the distance from the bottom of the trough to the resting level of the sheet.

Angle x is the angle of incline of sheet 114 at contact point P. The sheet rises in front of the clubhead and descends behind the clubhead.

Operation

The mats of this invention hold a ball and receive club contact, but are not for standing on. The golfer stands on a separate stance mat placed adjacently.

The golfer is allowed to use a swing that produces divots on natural turf. Adjustment of the swing to avoid hitting downward into a golf mat while practicing is no longer required. In addition, fear and risk of injury due to snagging of the clubhead are eliminated.

Mat Dynamics and the Schematic Teeing Mat of FIG. 4

The sheet of the mat transmits the force of impact of the clubhead to the cushion over a comparatively large area, compared to traditional mats.

Mats 10, 40 and 70 compress in such a way that club impact forms a trough in the sheet and cushion, as illustrated by trough 118 of FIG. 4.

Trough 118 moves with the clubhead, from right to left in FIG. 4, changing depth and location as clubhead 112 moves. Interestingly, the trough width tw on a given mat does not change. With a given cushion and sheet, trough width is constant regardless of the degree of deflection. This can be witnessed by flexing the sheet up and down by hand. How far a clubhead deflects a mat depends on the particular mat and the particular momentum and arc of the clubhead on each swing. The clubhead can stay in contact with mat 10 or 40 for 30 cm (12 inches) or more while 15 cm to 20 cm (6 to 8 inches) is common.

The clubhead forms the trough by pushing against the front of the bottom part of the trough rather than exactly at the bottom of the trough. The clubhead therefore rides against an inclined portion of the trough. Angle x indicates the incline of the sheet at the clubhead contact point. The greater angle x is, the greater the friction generated against the clubhead.

Angle x increases as mat deflection increases. Another factor that affects angle x is the trough width. A wider trough will decrease angle x on average and therefore decrease the friction of the clubhead against the mat. Reduced friction contributes to the durability of the sheet or any artificial turf bonded to it. A large trough width also creates a more natural feeling.

There is also friction against the clubhead due to the vertical opposing force of the mat which increases as the deflection of the mat increases. The vertical opposing force also increases of course as the mat is made harder to compress.

Adjustment of Mat Dynamics

The mat should at least be soft enough to not bounce a club and at least firm enough to support a club and ball during address. Within these extremes, the choice of softness can be adjusted for other reasons like durability and feel to the golfer. For example, when artificial turf is used, such as on mat 40, the friction created by the artificial turf can be adjusted higher or lower by choice of cushion and sheet, to simulate natural turf or different types of natural turf under different conditions.

Increasing sheet stiffness makes the mat harder, which increases friction and the likelihood of bouncing a clubhead, but it also increases trough width, which decreases friction after the initial impact.

Adjustment in the opposite direction reverses the effects.

Increasing cushion firmness makes the mat harder and reduces deflection, with the result of increased vertical force and friction. The club will come out of the mat sooner. Trough width is reduced by increased cushion firmness.

The trough width can be adjusted independently of mat hardness by adjusting cushion and sheet opposite to each other. For example, a softer cushion and a stiffer sheet will increase trough width.

Stiffness of the sheet is a combination of flexural modulus, width of the sheet, and thickness of the sheet.

Flexural modulus is a measure of the inherent stiffness of the material. Sheet thickness affects stiffness by a factor of the third power. Sheet width proportionately effects stiffness.

The compressability of the cushion is a combination of the spring rate of the material, thickness of the cushion, and width of the cushion. A thicker or narrower cushion is in effect softer. Using two cushions with a center gap as is done in mats 10, 40 and 70 is in effect a narrower cushion.

The compressability of cushions of the same thickness can be compared by measuring the force required to compress to 50% of resting height the cushioning that lays beneath a 2.54 cm wide rectangular area extending across the mat width. On mats 10 or 40 this force is 1.3 Lbs.

Using Two Cushions

The cushion for mats 10, 40, and 70 is a dual cushion with a center gap. By increasing the center gap, the cushion can be made softer. Another advantage of using two cushions is that the hardness of the mat on the centerline is limited to about twice the hardness at the edge, while the difference would be greater with a smaller center gap.

Operation of Slopes

Front and rear bevels on mats 10, 40, and 70 serve several functions. Primarily they produce a change of elevation of the sheet whereby the sheet can come into contact with the base for fastening. The gradualness of the slope of the slopes allows the top of the slope in the bend area to depress easily to the base.

The rear bevel also reduces the risk of accidental impact at the rear end of the mat.

Base Operation

The corrugated rubber bases of the mats 10, 40 and 70 serve two functions. One is to keep the mats from moving forward at impact. The transverse corrugations of the base catch on irregularities in the ground, particularly under the weight of the rubber, so as to anchor the mats against forward movement. The mass of the rubber base also provides inertia against movement. A side of the base may be placed under an adjacent stance mat to further increase anchoring.

The other function of the base is to hold down the ends of the sheet from springing upward slightly as the clubhead compresses the mat.

Operation of Teeing Mat 10—FIG. 1

Teeing mat 10 can be used with either end placed forward. A golf ball is set in one of ball holders 22 and struck. A negligible amount of friction is encountered by the clubhead contact with sheet 16 since the surface of sheet 16 is smooth. There is little force to move the mat forward. Delamination and ripping of artificial turf cannot occur since there is no artificial turf. Sheet 16 wears very slowly. Hitting balls from mat 10 simulates hitting balls off a wooden tee or extremely lush natural turf wherein the clubhead meets very little resistance.

Sheet 16 can deflect a maximum of almost 1.2 cm ($\frac{1}{2}$ inch), compressing cushions 20a and b.

Trough width is 23 cm (9 inches) when measured statically as described above under the description of FIG. 4.

Operation of Teeing Mat with Artificial Turf, Mat 40—FIG. 2

Mat 40 has artificial turf bonded to its sheet to serve several functions. A primary function is that it looks good to the golfer and appeals to golfer expectations. Another function of artificial turf is to hold a golf ball in hitting position so the ball does not roll away. A further function of artificial turf is to provide some resistance to horizontal clubhead movement. Artificial turf, as used in mat 40, provides a friction with the clubhead which approximates the resistance of natural turf. Friction informs the golfer whether the mat or the ball has been hit first and how deeply into the mat the clubhead goes. The intensity and duration of friction increases with increasing depth of the clubhead arc.

It is imperative that artificial turf be securely bonded over its entire area so that it does not buckle or wrinkle in front of the moving clubhead and thereby snag the clubhead.

Trough width is about 28 cm (11 inches) measured as described above. The trough is larger than that of mat 10 because sheet 46 is stiffer than the sheet of mat 10, and bonding turf to a sheet adds stiffness, in an amount depending on the brand of turf.

The artificial turf, sheet, and cushions of mat 40 may be renewed as a unit without renewing the rubber base 54.

The durability of artificial turf and its bond to the sheet is improved over that of traditional mats. The sheet provides a more dimensionally stable, less penetrable surface for carrying turf than does a traditional cushioned mat, so the turf and the adhesive are less stressed. Angle x is kept low so that friction-induced stress is low. Ample mat deflection also reduces stress and friction on the turf and bond.

Deceleration never exceeds an acceptable level. Delamination which causes excessive friction or snagging does not occur.

Operation of Driving Mat, Mat 70—FIG. 3

Mat 70 is a specialized mat for driving a golf ball from a rubber tee.

A clubhead does not hit the mat surface 76 on a good shot. When surface 76 is contacted, however, the sheet and cushion flex so that no damage is done to club, sheet, or rubber tee.

Traditional mats quickly destroy rubber tees because the full force of the clubhead can pinch the rubber tee stem against a solid part of the mat. Mat 70 provides notch 98 as a gap for the tee stem to bend through so that it may avoid being pinched against the sheet while the clubhead passes over it. Notch 98 extends to the front of the sheet, creating a gap at the front of the sheet, so that topped balls cannot hit the edge of the sheet solidly.

Mat 70 uses firmer cushions than mats 10 and 40 in order to reduce mat deflection and preserve adequate space to protect tee stem 83.

The overall height of mat 70 is about 3.4 cm (1.3 inches), much the same as mat 40 so as to create equal height for adjacent use of mat 40 and 70.

The trough width of mat 70 is around 20 cm (8 inches), measured as before.

Conclusion, Ramifications, and Scope of Invention

When struck, the mats move down out of the way of the moving clubhead relatively easily in comparison to

traditional mats. This easy movement includes movement far ahead of the clubhead to reduce friction and mat damage while creating a proper feel.

Thus the reader will see that the teeing mat of the invention provides a more pleasurable, productive, and safer product for the golfer and a more economical and attractive product for the driving range operator.

While the above description contains many specificities, the scope of the invention includes a broad range of other designs, only some of which have been detailed.

The turf-covered mat 40 may be altered at its front end to utilize a rubber tee for driving as found in mat 70, including a V-notch and a hole in the base like those of mat 70. The resulting combination mat, while less costly and more manageable than two separate mats, will not last as long or protect rubber tees as well as the separate dedicated mats, but may be preferred by range operators.

Cushions may be made from many materials with springing capacity.

Two or more mats of the same or different type may be placed on one base.

Length of the sheet can be altered without affecting mat dynamics. Width and height can be changed and the mat dynamics readjusted.

Artificial turf may be constructed through small holes in the sheet to create a stronger mechanical connection of turf to sheet. Fibers of artificial turf may also be bonded directly onto the top of a sheet by fusion or adhesive.

Driving mat 70 can have a small piece of extra firm foam bonded to the underside of sheet 76 behind the tee stem in the center gap to further protect the rubber tee from pinching.

If the gap between the cushions is made different at each end of the mat, a firmness option is created for users.

The pore size of the foam cushions can be adjusted to control outflow of air from the cushions to create a time-based resilience of the mat.

A wider mat may be made if sheets are placed adjacently. A single piece of artificial turf may be bonded to the adjacent sheets.

A mat may be inserted in a cutout in a stance mat. It could be attached to the stance mat by connecting a sheet with or without bevels to the stance mat at the front and back of the sheet.

The teeing mat without its cushion can be adapted for use over natural turf. Existing grass or mud acts as a cushion for the sheet.

Turf may be extended and curled over the edge of the sheet to provide a ramp for golf balls to be pulled by a clubhead onto the turf.

Accordingly, the scope of the invention should be determined not by the embodiments illustrated, but the appended claims and their legal equivalents.

I claim:

1. A golf ball teeing mat comprising:

- a. a resilient horizontally disposed sheet,
- b. a resilient cushion, positioned under said sheet, generally continuous in the direction of hitting
- c. an artificial turf afixed atop said sheet, said turf generally coextensive with said sheet, a bonding means forming a bond between said sheet and said turf, said bond having no substantial gaps,
- d. a concave trough formed by manual flexing of said mat, said trough having a first point where said sheet descends below horizontal and a second point where said sheet returns to horizontal, said trough having a distance between said first and second points of 8 inches or greater, said sheet being stiff enough and said cushion being soft enough to create said trough at generally any location along the upper surface of the mat sufficiently spaced from the edges thereof to permit the formation of the trough.

2. The teeing mat of claim 1, further including a first slope disposed on a first end of said sheet slope angled downward and outward from said sheet, said first end being that over which a clubhead passes in the hitting direction,

3. The teeing mat of claim 2, further including a second slope disposed on a second end of said sheet, said second end opposite said first end, said second slope angled downward and outward from said sheet.

4. The teeing mat of claim 3, further including a base located under said cushion and sheet, said base connected to said slopes.

5. The teeing mat of claim 1, further including a plurality of said sheets, said sheets positioned side by side under said artificial turf, each said sheet afixed by said bonding means to said turf.

6. A golf ball teeing mat comprising:

- a. a resilient horizontally disposed sheet having a flexural rigidity greater than 40 Lbs-inches-squared
- b. a resilient cushion located under said sheet, generally continuous in the direction of hitting, said cushion having a resistance to compression less than 4.4 Lbs. at a 50% reduction in resting height, said resistance being measured without said sheet and in an area one inch wide extending across said sheet in a direction perpendicular to the hitting direction,
- c. an artificial turf afixed atop said sheet, said turf generally coextensive with said sheet, a bonding means forming a bond between said sheet and said turf, said bond having no substantial gaps
- d. a concave trough formed by manual flexing of said mat, said trough having a first point where said sheet descends below horizontal and a second point where said sheet returns to horizontal, said sheet being stiff enough and said cushion being soft enough to create said trough at generally any location along the upper surface of said mat sufficiently spaced from the edges thereof to permit the formation of said trough.

* * * * *



US005415407A

United States Patent [19][11] Patent Number: **5,415,407****Beatty**[45] Date of Patent: **May 16, 1995****[54] GOLF TRAINING METHOD**[76] Inventor: **C. Hayden Beatty**, 2148 Woodland Ave., Burlington, N.C. 27215[21] Appl. No.: **178,114**[22] Filed: **Jan. 6, 1994****Related U.S. Application Data**

[63] Continuation of Ser. No. 956,382, Oct. 5, 1992, abandoned, which is a continuation of Ser. No. 793,472, Nov. 18, 1991, abandoned.

[51] Int. Cl.⁶ **A63B 69/36**[52] U.S. Cl. **273/187 R; 434/252**[58] Field of Search **273/187 R, 187 A, 187 B, 273/187.1, 187.2; 434/252****[56] References Cited****U.S. PATENT DOCUMENTS**

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Primary Examiner—George J. Marlo**[57] ABSTRACT**

A method of teaching a proper golfing stance for hitting a golf ball utilizing three strips each having three apertures, one at each end of each strip and one positioned midway therebetween comprising the steps of

(a) positioning an end of said first strip on a golfing surface proximate said golf ball and an opposite end away from said ball so that said strip is aligned with said ball and perpendicular to the intended direction of travel of said golf ball;

(b) positioning the middle aperture of said second strip on top of and in alignment with the end aperture of said first strip proximate said golf ball so that said second strip is perpendicular to said first strip and parallel to the intended direction of travel of said golf ball;

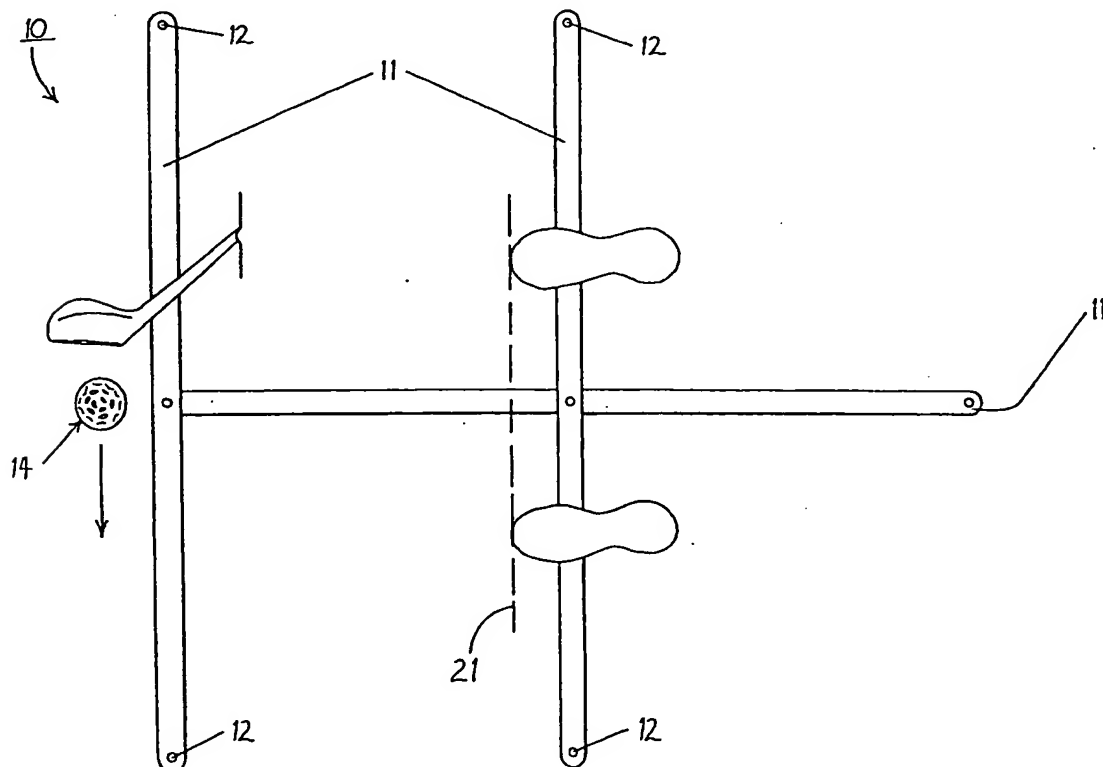
(c) positioning the middle aperture of said third strip on top of and in alignment with the middle aperture of the first strip so that said third strip is perpendicular to said first strip and parallel to said second strip;

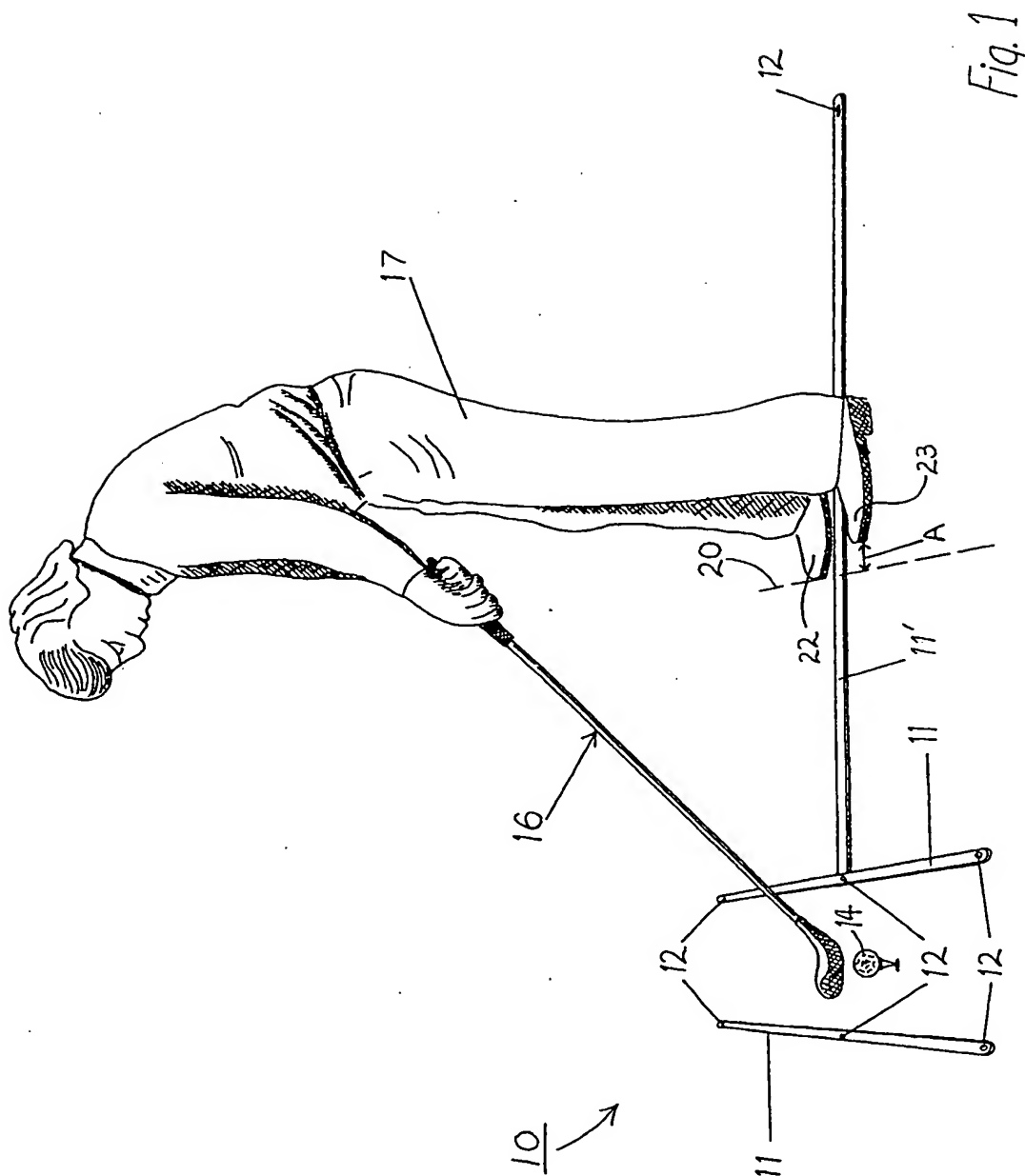
(d) securing said second strip to said first strip through the aligned and overlapping apertures;

(e) securing said third strip to said first strip through the aligned and overlapping apertures;

(f) securing the end apertures of said first, second, and third strips to the golfing surface; and

(g) positioning a golfer on said third strip so that he faces the golf ball with one foot to each side of and parallel to said first strip.

6 Claims, 5 Drawing Sheets



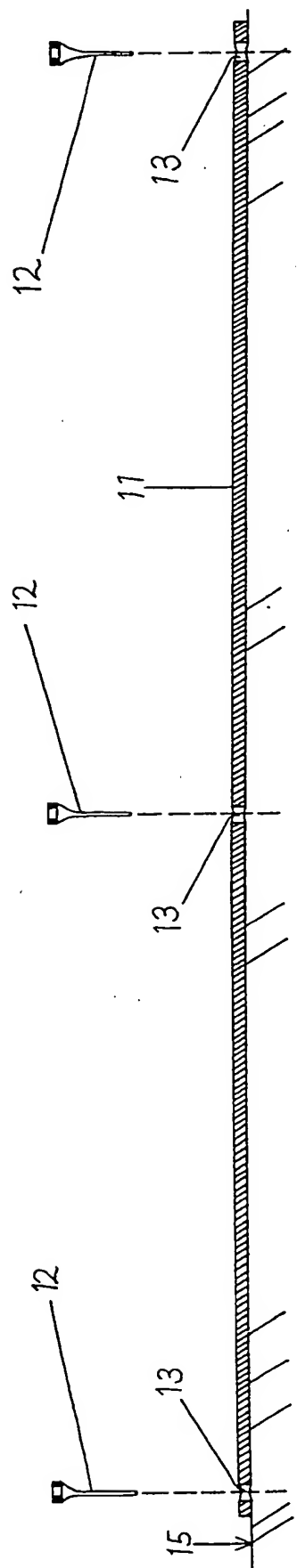


Fig. 2

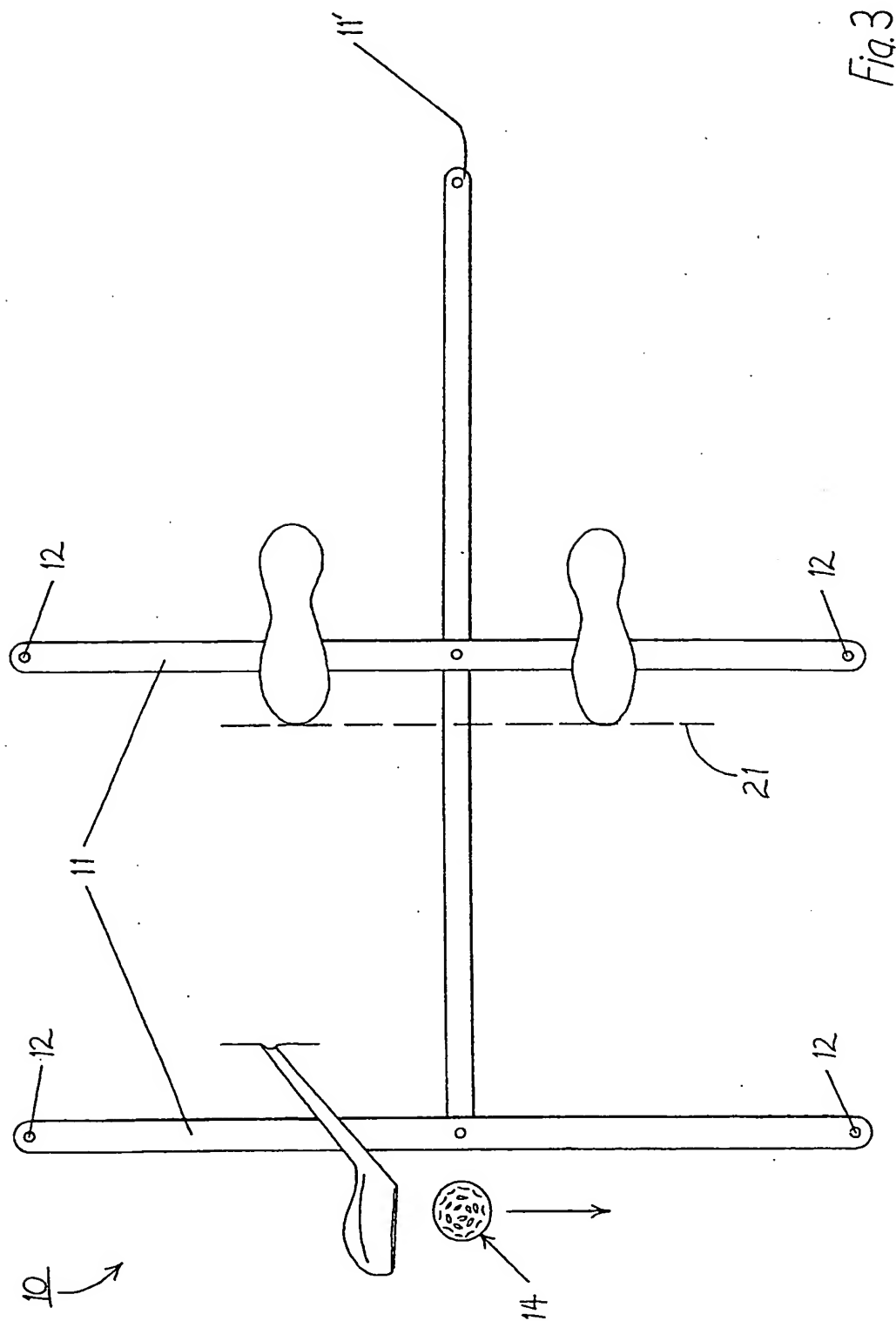
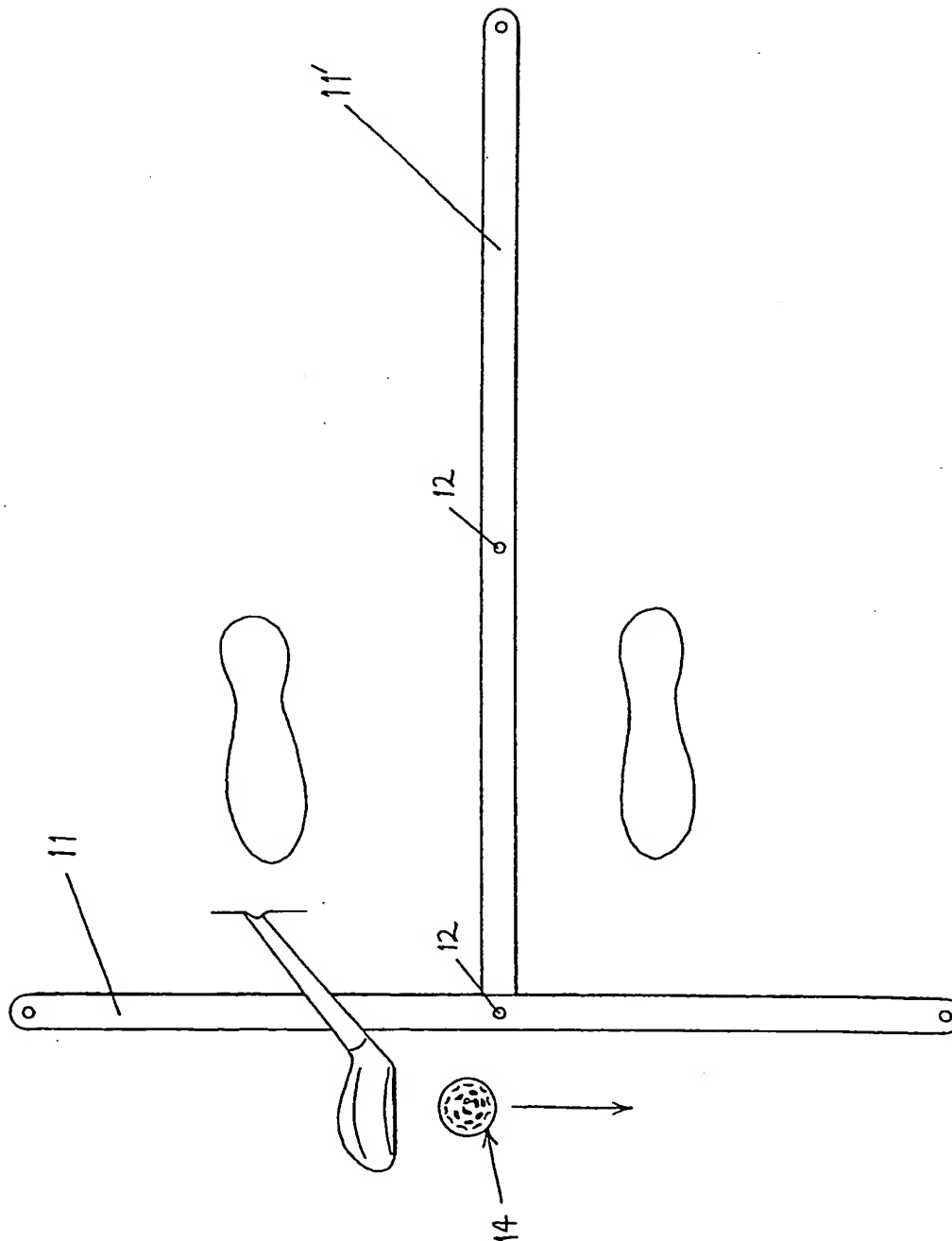
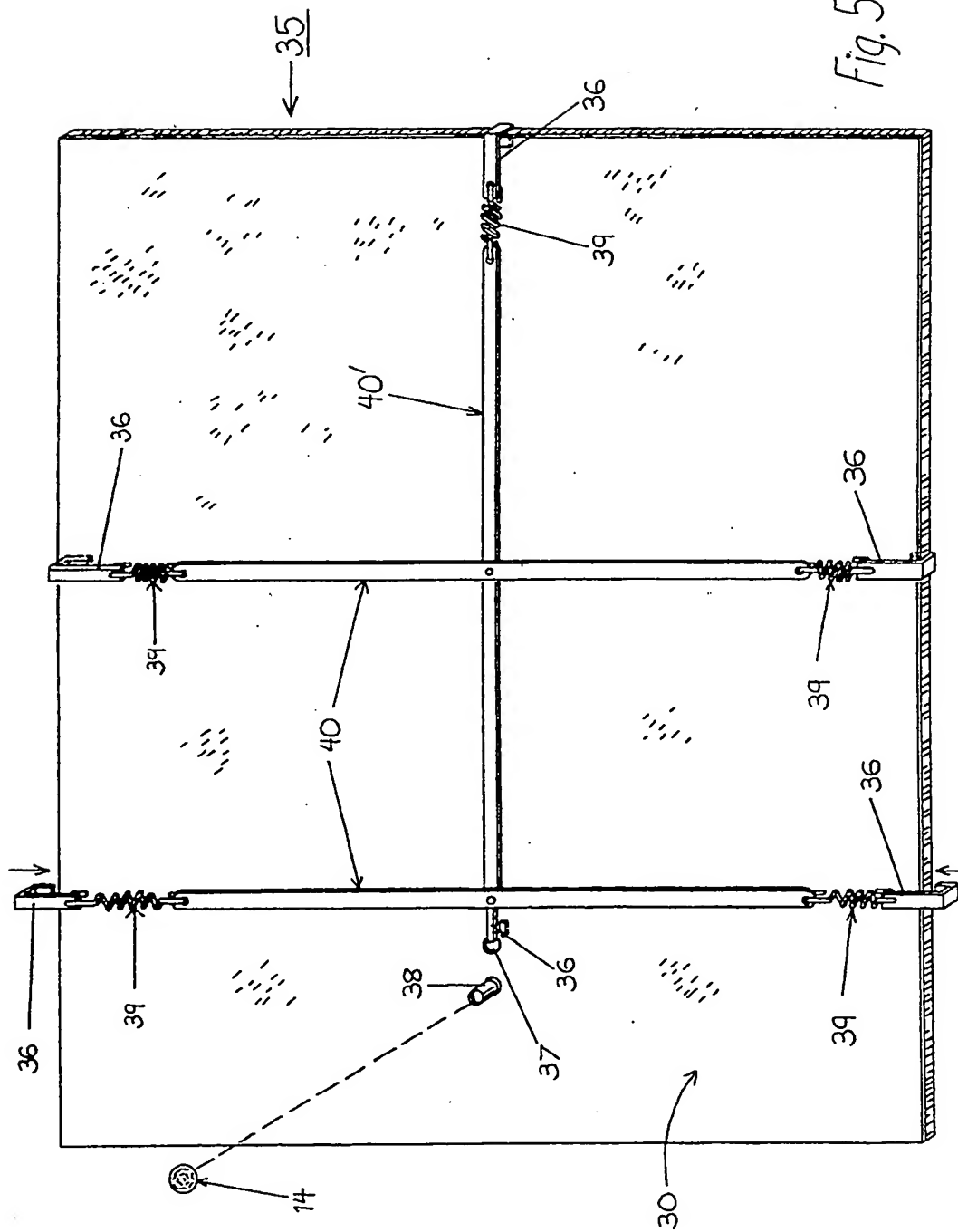


Fig. 4





GOLF TRAINING METHOD

This is a continuation of application Ser. No. 07/956,382, filed 05, Oct. 1992, now abandoned, which was a continuation of U.S. patent application Ser. No. 07/793,472, filed 18, Nov. 1991, now abandoned.

BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention pertains to the game of golf and particularly to a device and method for teaching and assisting golfers in correctly stroking the ball. Indicia in the form of strips are releasably attached to the ground to allow the golfer to correctly stand and address the ball.

2. Description of the Prior Art And Objectives of the Invention

Various golf teaching aids have been devised in the past to assist golfers in swinging a club correctly and such devices have included modified club heads, shafts and grips. Such prior devices do not provide the necessary features to allow a golfer to develop the correct "feel" for the golf swing when using regular golf clubs. Hence, the present invention was conceived and one of its objectives is to provide a golf training aid and method which can be used by the golfer with standard golf clubs.

It is another objective of the present invention to provide a golf training device which will assist the golfer in developing a smooth directionally correct swing with any of the variety of golf clubs used.

It is still another objective of the present invention to provide a golf training aid which can be easily transported and set up, either on a practice tee or elsewhere as desired.

It is still another objective of the present invention to provide a golf training aid which is relatively lightweight, and can be compactly stored for carrying on the person or in a golf bag.

It is still another objective of the present invention to provide a golf training method utilizing a series of strips of flexible, durable, UV-inhibited plastic material which can be quickly fastened to the ground in a variety of configurations with golf tees, yet which will remain in place for many months or weeks as wanted.

Various other objectives and advantages of the present invention become apparent to those skilled in the art as a more detailed description is presented below.

SUMMARY OF THE INVENTION

The aforesaid and other objectives are realized by providing a golf training aid and method and particularly a training aid which is placed on the ground, proximate the feet of the golfer as he addresses the ball to assist the golfer in obtaining correct alignment and swing of the golf club. The device comprises in combination a plurality of thin, flexible polymeric strips which are fastened to the ground by small stakes which are positioned through apertures within the strips. The strips are stabilized on the ground in one or more patterns depending on the club selected and to furnish to the golfer a clear visual indication of his stance and club alignment relative to the ball and the intended direction of travel of the ball before, during an after contact between the club and ball.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a golfer with the training aid of the invention positioned on the ground with the golf ball between two parallel strips;

FIG. 2 illustrates a cross-sectional side elevational view of one strip of the invention;

FIG. 3 shows yet another configuration of the invention with an outline of the golfer's feet as he addresses the golf ball; and

FIG. 4 illustrates yet another configuration of the invention utilizing two of the strips.

FIG. 5 illustrates the invention releasably affixed to an artificial grass practice mat.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred apparatus of the invention is illustrated in FIG. 1 whereby a plurality of three thin, flexible polyvinyl material strips or "tapes" are fastened to the ground in a "T" configuration wherein the golf ball is located midway between the upper parallel strips. The strips are fastened to the ground through holes therein which receive conventional golf tees acting as stakes to stabilize the strips on the ground. The preferred method of the invention includes placing the strips on the ground or other substrate as shown in FIG. 1 and thereafter aligning the feet of the golfer on either side of the singular lateral strip whereby the golf club can be swung to direct the ball in a flight substantially parallel with the longitudinal axes of the two upper strips and perpendicular to the lateral strip. The method thus allows the golfer to check and correct the position of his feet and club alignment.

DETAILED DESCRIPTION OF THE DRAWINGS AND OPERATION OF THE INVENTION

The apparatus of the invention is shown in FIG. 1 whereby golf training aid 10 is seen in FIG. 1 comprising two parallel flexible UV-inhibited polymeric material strips 11 and identical lateral strip 11' which are releasably stabilized in the ground by golf tees 12 positioned through apertures 13 as better shown in FIG. 2. Material strip 11 is seen in FIG. 2 in cross-sectional view and comprises a relatively thin (approximately one millimeter) flexible polymeric strip of a polyvinyl chloride composition or polyethylene and which may be for example eighteen millimeters wide and approximately ninety centimeters in length. Strip 11 includes a series of three apertures 13 for receiving stakes 12 consisting of conventional golf tees therethrough. As also shown in FIG. 2, strip 11 is stabilized to substrate 15 which may for example be a portion of flat terrain or a driving pad as are commonly available at commercial golf driving ranges.

Thus, strips 11, 11' can be placed on the ground in any of a number of combinations and can be attached together and to the ground or other suitable surface by use of stakes 12 which stabilize the strips in place during use. By the particular combination of strips as shown in FIGS. 1, 3 or 4, a variety of configurations can be created depending on the particular stroke to be practiced. For example, in FIG. 4 a putting stroke may be easier learned with the combination of perpendicular strips 11, 11' whereas in FIG. 3, a pair of parallel strips 11' are utilized behind golf ball 14 with perpendicular strip 11' to insure a correct stance by equally spacing the golfer's

feet on each side thereof. Imaginary toe line 21 in Fig. 3 allows the golfer to "square" himself to the ball, with line 21 parallel to strips 11 while using a five iron.

In FIG. 1, the particular configuration of strips 11 as shown is utilized whereby ball 14 is positioned between the parallel strips 11 and golfer 17 straddles perpendicular strip 11' in an "open" stance with right toe 22 touching imaginary line 20 which is parallel to strips 11 and with left toe 23 rearward thereof some length A, for example six inches. Thus, with the configuration as shown in FIG. 1, a method of training is thereby provided to insure that the feet of golfer 17 are positioned in desired alignment or spaced from both strip 11' and perpendicular strips 11 depending on the stance required. Thus, the flight of golf ball 14 should "slice" and deviate from between the extended imaginary longitudinal axes of parallel strips 11 as shown in FIG. 1. The strip placement and golfer's stance relative thereto provides a method for insuring a proper golf swing and ball direction. In FIG. 1, golfer 17 is using a driver 16 although various other woods or irons may likewise be used for practicing various club strokes.

In FIG. 5, practice mat 30 is shown which may be for example an artificial grass mat 6' by 6' in size and approximately one inch thick. Mat 30 is conventionally used at golf driving ranges, teaching courses and other facilities. Golf training aid 35 is placed thereon and comprises a plurality of J-hook members 36 which fit around the edges of mat 30 and through aperture 37 near tee 38. Resilient members 39 may consist of a coil spring as shown in FIG. 5 or may include a resilient elastic strap or the like to maintain tension on parallel polyvinyl chloride strips 40 and 40'. Thus, training aid 35 can be used on artificial grass mats in addition to being placed on the ground to help assist a golfer in perfecting his swing.

The illustrations and examples provided herein are for explanatory purposes and are not intended to limit the scope of the appended claims. The exact placement and number of strips can be varied with the strips at different angles to one another as needed for teaching purposes to allow the golfer to develop the most advantageous swing.

I claim:

1. A method of teaching a proper golfing stance for hitting a golf ball utilizing three elongated, thin, planar, continuous, unitary, flexible material strips with each said strip defining at least three apertures, with one of

said apertures positioned at each end of said strip and one of said apertures positioned substantially equally therebetween comprising the steps of:

- (a) positioning an end of said first strip on a golfing surface proximate said golf ball and an opposite end away from said ball so that said strip is aligned with said ball and perpendicular to the intended direction of travel of said golf ball;
- (b) positioning the middle aperture of said second strip on top of and in alignment with the end aperture of said first strip proximate said golf ball so that said second strip is perpendicular to said first strip and parallel to the intended direction of travel of said golf ball;
- (c) positioning the middle aperture of said third strip on top of and in alignment with the middle aperture of the first strip so that said third strip is perpendicular to said first strip and parallel to said second strip;
- (d) securing said second strip to said first strip through the aligned and overlapping apertures;
- (e) securing said third strip to said first strip through the aligned and overlapping apertures;
- (f) securing the end apertures of said first, second, and third strips to the golfing surface; and
- (g) positioning a golfer on said third strip so that he faces the golf ball with one foot to each side of and parallel to said first strip.

2. The method as claimed in claim 1 wherein said positioning said strips includes positioning strips having approximate dimensions of one millimeter thickness, eighteen millimeters width, and ninety centimeters length.

3. The method as claimed in claim 1 wherein positioning said strips includes positioning strips formed from a polymeric material.

4. The method as claimed in claim 1 wherein said securing the end apertures of said first, second, and third strips to the golfing surface includes securing the ends with golf tees.

5. The method as claimed in claim 1 wherein said securing said end apertures of said first, second, and third strips to the golfing surface includes resiliently hooking the ends to an artificial golfing surface.

6. The method as claimed in claim 1 wherein said positioning said strips includes positioning strips formed from durable ultraviolet light inhibited plastic tape.

* * * * *



US006156396A

United States Patent [19]

Florian

[11] Patent Number: 6,156,396
[45] Date of Patent: Dec. 5, 2000

[54] GOLF PRACTICE MAT

[76] Inventor: Raymond Florian, 14440 Elwell,
Belleville, Mich. 48111

[21] Appl. No.: 09/132,588

[22] Filed: Aug. 11, 1998

[51] Int. Cl.⁷ A63B 69/36

[52] U.S. Cl. 428/17; 473/278

[58] Field of Search 428/17, 15, 95,
428/88; 473/278, 279

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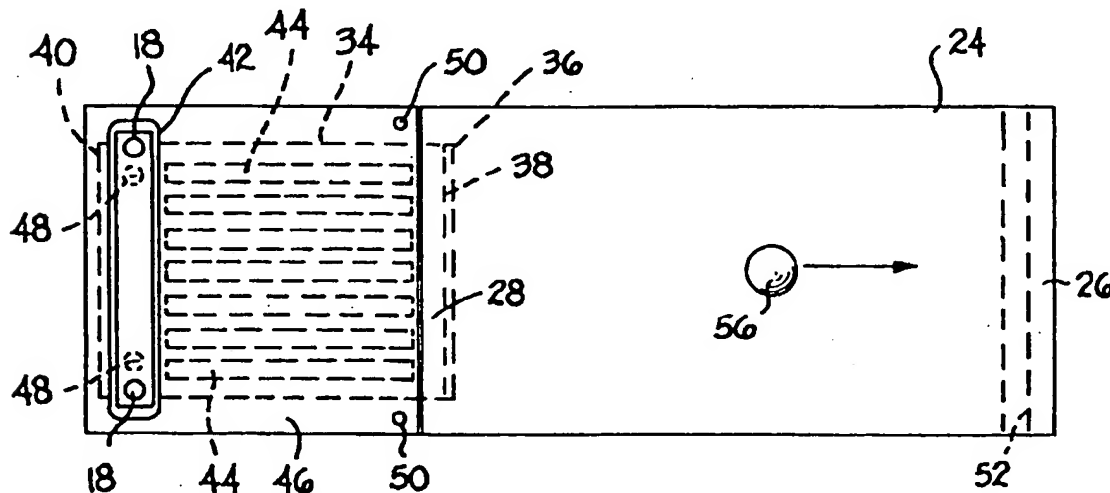
Primary Examiner—Alexander Thomas

Attorney, Agent, or Firm—Charles W. Chandler

[57] ABSTRACT

A golf practice mat includes a relatively thick base pad formed of a resilient elastomeric material, e.g. foam rubber, and an artificial grass carpet slidably positioned on the base pad. An elastic biasing mechanism is provided for positioning the carpet on the pad. When a golf ball on the carpet surface is forcibly struck, the carpet can slide a limited distance to absorb the club force, so as to lessen the reaction force onto the golfer's hands and arms. The elastic biasing mechanism then returns the carpet to its original position.

8 Claims, 1 Drawing Sheet



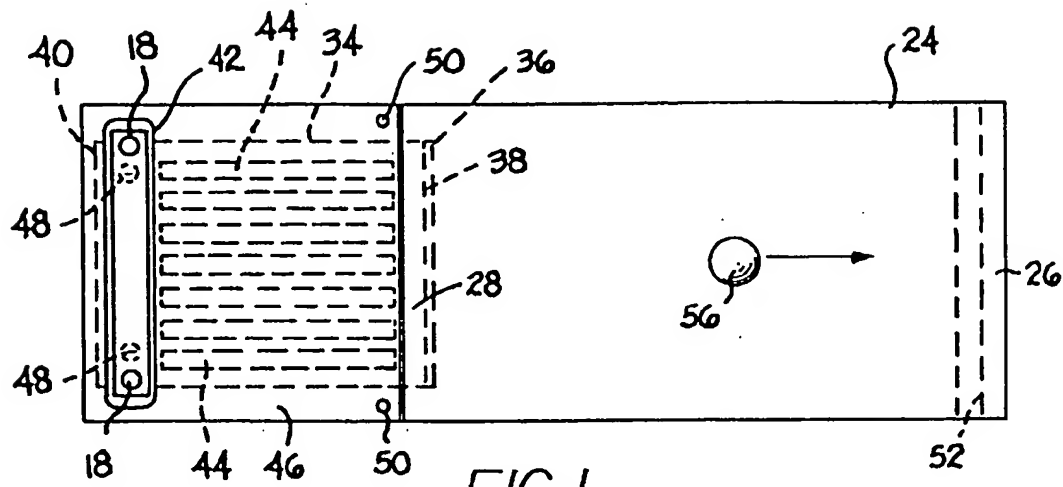


FIG. 1

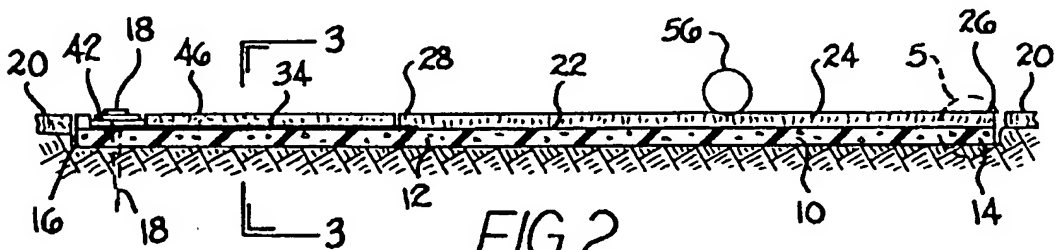


FIG. 2

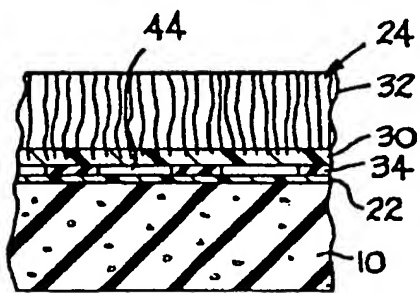


FIG. 3

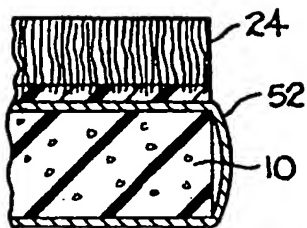


FIG. 5

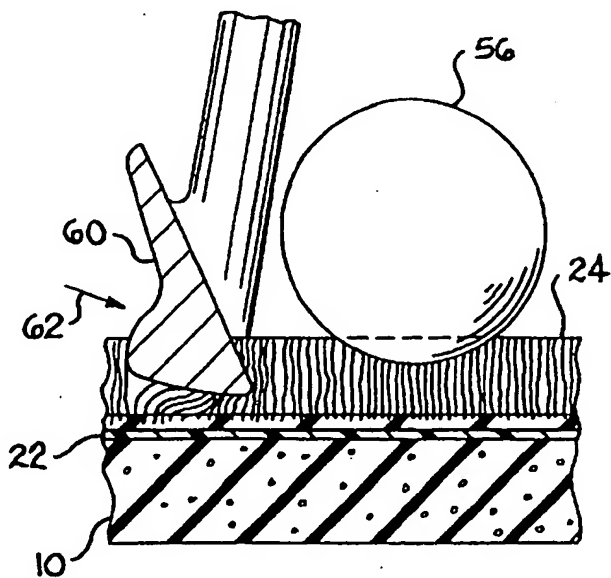


FIG. 4

GOLF PRACTICE MAT

BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates to a golf practice mat, and particularly to a golf practice mat having shock-absorption features for minimizing ground reaction forces onto the golfer's hands and arms.

Golf practice mats are already known in the prior art.

U.S. Pat. No. 3,348,847, to Frederick Fischl, shows a golf practice mat having a simulated divot that allows the golf club head to continue down into the mat after striking the golf ball.

U.S. Pat. No. 5,443,870, to Lewis Lurie and James W. Lyman discloses a golf mat having an upwardly bulged hill that allows the golfer to practice side hill shots, uphill shots, or downhill shots.

U.S. Pat. No. 4,497,853, to Seymour A. Tomarin, shows a golf mat that includes a simulated grass upper layer having a sand filler, a water barrier sheet, and a springy fibre base layer.

The present invention relates to a golf practice mat that includes a base pad formed of a resilient compressible material, e.g. plastic foam, and an artificial grass carpet slidably positioned on the pad upper surface, whereby the grass carpet shifts along the pad when struck by a golf club during a practice golf swing.

The golf practice mat of this invention has shock-absorbing features that produce essentially the same feeling as hitting the golf ball off soft bent grass fairway turf. The mat has been developed to produce good ball contact while avoiding club head bounce off a hard mat surface. An advantageous effect is to minimize potential pain and/or injury to the golfer's hands or arms, resulting from jarring contact between the golf club head and the mat surface.

Further features of the invention will be apparent from the attached drawings and description of an illustrative embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a golf practice mat constructed according to the invention;

FIG. 2 is a sectional view taken on line 2—2 in FIG. 1;

FIG. 3 is a fragmentary enlarged sectional view taken on line 3—3 in FIG. 2;

FIG. 4 is a fragmentary enlarged sectional view taken through the FIG. 1 golf practice mat, showing the interaction of the mat with the head of a golf club during an illustrative golf swing; and

FIG. 5 is a fragmentary enlarged partial view taken on line 5 in FIG. 2.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

FIGS. 1 and 2 shows a rectangular golf practice mat that includes a base pad 10 formed of a resilient material, e.g. an elastomeric plastic foam material, or an elastomeric rubber foam material.

Pad 10 is positioned on a suitable rigid support surface, e.g. hard earth or concrete 12. Pad 10 has a first free end 14 and a second end 16 that may be rigidly anchored to support surface 12 by two or more spikes 18. The ground area around the practice mat can be overlaid with live (growing) grass 20.

The upper surface of pad 10 has a covering layer 22 formed of an anti-friction (slippery) material, e.g. a smooth-surface plastic film laminated onto the pad 10 upper surface.

Anti-friction layer 22 preferably extends substantially the entire length and width of pad 10.

Slidably positioned on anti-friction layer 22 is an artificial grass carpet 24 having a first end 26 coextensive with end 14 of pad 10. Grass carpet 24 has a second end 28 spaced a significant distance to the right of pad end 16. Thus, artificial grass carpet 24 has a length dimension that is appreciably less than the length dimension of pad 10. The width dimension of artificial grass carpet 24 can be the same as the width dimension of pad 10, whereby the pad forms a resilient supporting surface underlying the entire lower surface of artificial grass carpet 24.

Artificial grass carpet 24 can be a commercially available carpet material used as an artificial turf for various sporting activities, e.g. football or baseball. Artificial grass carpet materials are shown in various United States patents, e.g. U.S. Pat. No. 4,637,942 issued to Seymour A. Tomarin, U.S. Pat. No. 1,939,846 issued to Frank Fenton, and U.S. Pat. No. 5,443,870 issued to Lewis Lurie and James W. Lyman. A preferred artificial grass carpet for use in the present invention is a material available from Grass Tex, Inc. of Dalton, Ga., under the name of Hi Tec Turf.

The artificial grass carpet includes backing sheet 30 that serves as an anchorage for closely spaced fibre strands 32, formed e.g. form nylon, polypropylene, or polyester. Backing sheet 30 can be woven or non-woven. The artificial grass carpet 24 simulates natural grass.

The left end 28 of the artificial grass carpet 24 is connected to the left end 16 of foam pad 10 by a resilient connecting means 34. As shown in FIGS. 1 and 3, resilient connecting means 34 comprises a thin sheet of rubber sandwiched between carpet backing sheet 30 and the anti-friction layer 22 on pad 10.

Rubber sheet 34 has a right end area 36 attached to carpet backing sheet 30, e.g. by stitching 38, and a left end area 40 attached to pad 10, e.g. by adhesives and/or a clamping plate 42. The rubber sheet (or band) has plural spaced slots 44 therethrough for separating the sheet into separate tension elements that exert a leftward pulling force on artificial grass carpet 24.

Clamping plate 42 is positioned on the upper surface of a second immovable section 46 of artificial grass carpet. Suitable rivets 48 extend through plate 42 and carpet section 46 into foam pad 10, to anchor rubber band (sheet) 34 and carpet section 46 to the foam pad. Additional rivets 50 at the rightmost corners of carpet section 46 further secure the carpet section 46 to pad 10. However, rubber sheet 34 is otherwise free to stretch or contract in the space between anchorage points 38 (on carpet 24) and 48 (on pad 10).

Carpet section 46 is ornamental in nature; its principal function is to overlie and conceal the elastic connector means 34 without interfering with the desired stretching action. Carpet section 46 also abuts end 28 of carpet 24 to limit leftward motion of the carpet by the elastic band 34.

End 26 of artificial grass carpet 24 is loosely attached to end 14 of pad 10 by a flexible connector sheet 52. As shown in FIG. 5, one end area of sheet 52 is affixed to the undersurface of carpet 24. The other end area of sheet 52 is affixed to the undersurface of pad 10, as by stitching or adhesives. Sheet 52 has some slack therein, such that carpet 24 can slide a limited distance on the upper anti-friction surface of the pad. In the normal position of carpet 24, the elastic band 34 exerts a leftward pulling force on carpet 24

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so that attachment sheet 52 lies close against the end edge of pad 10, as shown in FIG. 5.

In use of the illustrated golf practice mat, the golfer positions the golf ball 56 approximately centrally on the artificial grass carpet 24, and then takes a golfing stance alongside the mat. The golf swing is directed so that the ball is driven to the right, as indicated by arrow 58.

If the golf club head should strike the ball cleanly, with minimal contact between the club head and carpet 24 then carpet 24 will remain motionless (undisturbed) on pad 10. FIG. 4 illustrates a club mishit, wherein the club head 60 has a descending motion downwardly toward pad 10 in back of the ball, as indicated by arrow 62. As the club head descends into the carpet 24 it moves the carpet a slight distance to the right against the pulling action of elastic connector means 34. The carpet absorbs the club head force without exerting an abnormally high reaction force back onto the club head. Some force absorption is provided by pad 10. However, additional force absorption is provided by slidable deflection of the carpet. This slidable deflection of the carpet on pad 10 lessens stress on the golfer's hands and arms, and thus makes the golfing experience more enjoyable.

The slidable deflection of carpet 24 along pad 10 also tends to reduce club head bounce. When the club head strikes a fixed carpet surface, the reaction force of the fixed surface against the club head tends to deflect the head upwardly as a bouncing effect is considerably reduced or eliminated.

A principal advantage of the invention is the slidable positionment of the artificial grass carpet 24 on the resilient pad 10. The resilient restoring means 34 returns the carpet to its original position after the golf club has driven the ball off the carpet or otherwise been disengaged from the carpet surface.

Having described my invention, I claim:

1. A golf practice mat comprising:
 - a base pad formed of a resilient material;
 - said pad having a flat upper surface;
 - an anti-friction layer on the pad upper surface;
 - an artificial grass carpet slidably positioned on said anti-friction layer;

4

said carpet having a first end and a second end; means loosely attaching said first end of the carpet to said pad; and

resilient means trained between said pad and the second end of said carpet for pulling the carpet along the anti-friction layer away from said loose attaching means, whereby said carpet can shift in the direction of said loose attaching means when struck by a golf club; said resilient means being operable to return said carpet to its original position after the golf club has been disengaged from the carpet.

2. The golf practice mat of claim 1, wherein said resilient means comprises an elastomeric band having one end anchored to said pad and another end anchored to said grass carpet.

3. The golf practice mat of claim 1, wherein said resilient means comprises an elastomeric band having one end anchored to said pad and another end anchored to said grass carpet; said elastomeric band being sandwiched between said anti-friction layer and said grass carpet.

4. The golf practice mat of claim 3, wherein said pad has a longitudinal dimension and a width dimension; said elastomeric band being stretchable in the longitudinal dimension of said pad.

5. The golf practice mat of claim 3, wherein said pad and said carpet have a longitudinal axis and transverse axis; said elastomeric band being anchored to said pad and said carpet so as to stretch along the pad longitudinal axis.

6. The golf practice mat of claim 1, wherein said resilient means comprises an elastomeric band having one end anchored to said pad and another end anchored to said grass carpet; said elastomeric band being located between said anti-friction layer and said grass carpet; said elastomeric band having a stretch axis and plural parallel slots extending in the direction of said stretch axis.

7. The golf practice mat of claim 1, wherein said attaching means comprises a flexible connector sheet having a first portion thereof secured to said artificial grass carpet and a second portion secured to said base pad.

8. The golf practice mat of claim 1, wherein said base pad is formed of an elastomeric foam material.

* * * * *

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2,652,251

GOLF INDICATOR APPARATUS

Filed Jan. 4, 1952

FIG. 1

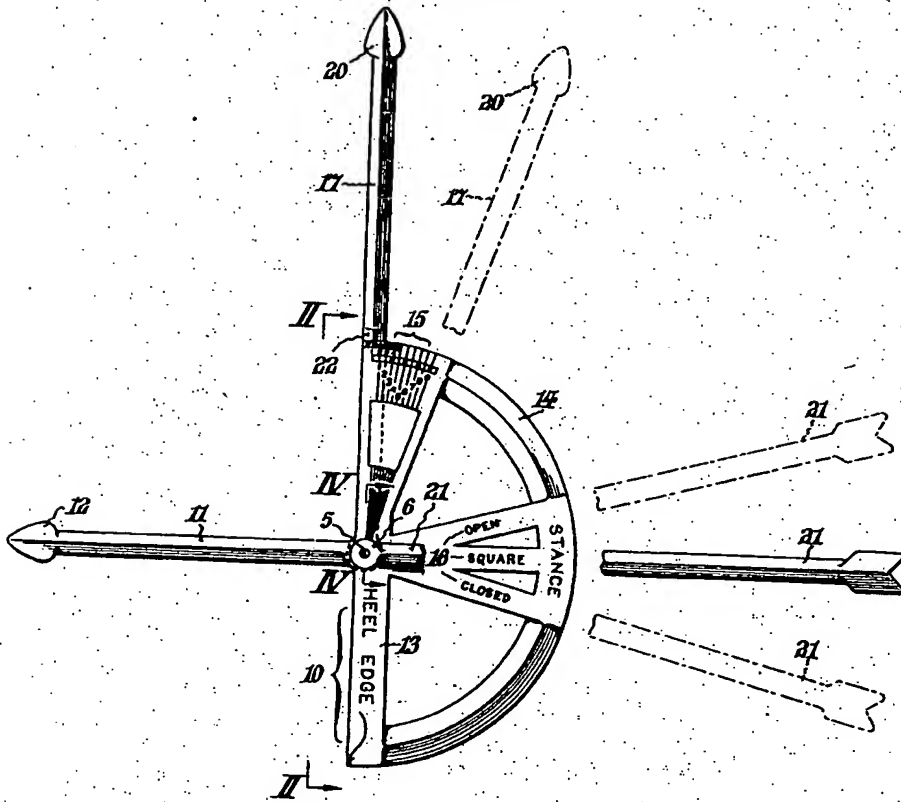


FIG. 2.



FIG. 3

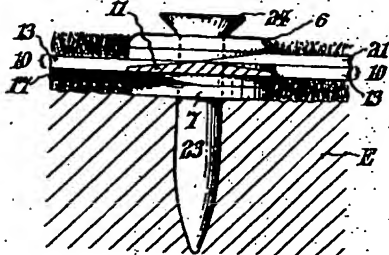
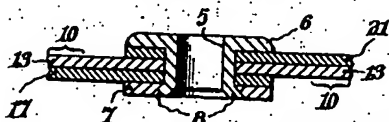


FIG. 4.



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GOLF INDICATOR APPARATUS

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2 Claims. (Cl. 273-35)

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2

This invention relates to a device for correcting or improving the stance of a golf player, and more particularly concerns an apparatus for marking the relative positions of a golf ball and the golf player's feet with respect to the direction of intended flight of the golf ball.

It is an object of this invention to provide an improved device for indicating and recording a golfer's stance. Another object is to provide a convenient guide including frictionally adjustable indicator arms for aligning the golf club in proper relation to the feet and ball. Another object is to provide an adjustable device of this character having calibrations indicating the proper change of position of feet and ball for utilizing golf clubs of different sizes and kinds. Another object is to provide a device of this character for controlling the direction and degree of curvature of the ball's flight and thereby correcting a golf player's tendency to hook or slice or guiding the golf player in an intended hook or slice.

Golf devices having direction indicator devices have been intended exclusively for practice purposes heretofore and have not been suitable for both practice and for actual play. Such devices have been cumbersome and heavy and therefore not well adapted to be carried by a golf player and used from stroke to stroke in actual play on a golf course. In this connection it is another object of this invention to provide an apparatus of the character indicated which is readily portable in a golf bag and detachably securable in fixed position to the surface of the golf course.

Other objects and advantages of the invention, including the simplicity and economy of the same, will be further apparent hereinafter, and in the drawings, whereof:

Fig. 1 represents a plan view of a golf indicator device constituting one specific embodiment of this invention.

Fig. 2 represents a front end view partly in section, taken as indicated by the lines and arrows II—II which appear in Fig. 1, with the relative positions of certain of the parts changed.

Fig. 3 represents an enlarged view similar to Fig. 2, showing how the device may be secured to the surface of a golf course, and

Fig. 4 represents a sectional view taken as indicated by the lines and arrows IV—IV which appear in Fig. 1.

In summary, the invention relates to a golf direction and stance indicator comprising a base, a sleeve extending through said base, said sleeve having a bore of sufficient size to accommodate

the shaft of a golf tee, a flight direction indicator fixed to said base, and position indicator arms pivoted to said sleeve above said base for indicating the position of the golf ball and the golfer's foot.

Turning now to the specific embodiment of the invention selected for illustration in the drawings, the number 5 designates a sleeve having a circular flange formed integrally at the top thereof. A washer 7 is secured to the bottom of the sleeve 5 and forms a flange similar to the flange 6, extending outwardly of the bore of sleeve 5. The washer 7 is secured in position by the flared portion 8 of the sleeve 5.

The number 10 designates a semi-circular base element to which is affixed a direction indicator arm 11 having an arrow head 12 at its forward end. The base 10 includes a transverse bar 13 having a straight line forward edge which serves to indicate the line along which the heel of the golfer's forward foot should be located. Specifically, for a right handed golfer, it will be understood that the right hand edge of the golfer's left (forward) foot will be disposed against the left hand (forward) edge of the base 10 while the golfer's toe will be placed against the near edge of indicator arm 11. The heel of the golfer's forward foot may be at any point adjacent the bar 13, or beyond its end, depending upon the length of the golfer's foot. But the golfer's foot will in any case be aligned with the forward edge of base 10. A curved bar 14 in the form of a semi-circle is formed integrally with the transverse bar 13. The bars 13, 14 carry the integral plate element 15 which carries markings indicating the proper positions of the parts for using golf clubs of different sizes and kinds. The bars 13, 14 also support three arms 16 which carry markings indicating the proper relative positions of the parts for opening and closing the golfer's stance.

An adjustable indicator arm 17 is pivotally mounted on the sleeve 5 immediately above the washer 7, and in frictional contact therewith. The adjustable indicator arm 17 carries an integral arrow head 20 indicating the proper initial position of the golf ball. It also carries an indicator stud 22 adjacent the markings on the plate element 15. The transverse bar 13 of base 10 is immediately above, and in frictional contact with, the adjustable indicator arm 17. Another adjustable indicator arm 21 is pivotally mounted on the sleeve 5 immediately above the transverse bar 13. Adjustable indicator arm 21 is in frictional contact with the transverse bar 13 and

with the flange 6. The adjustable indicator arm 21 extends rearwardly of the transverse bar 13 and has capacity to swing about the sleeve 5 to indicate the proper position of the rear foot of the golfer. It will be appreciated that the toe of the golfer's rear foot will be disposed against the back end of indicator arm 21, and that it will be disposed at the desired angle with respect to the golfer's front foot. This angle may vary with different golfers or with different stances (closed or open), but in all cases the toe of the rear foot will point at the indicator arm 21 and in many cases it will be substantially perpendicular thereto.

Means are provided for detachably securing the indicator device to the earth or other material comprising the surface of a golf course. It will be observed that the bore of sleeve 5 is of sufficient size to accommodate the shaft 23 of golf tee which has an enlarged head 24 larger than the bore of sleeve 5.

In operation, the golf indicator device is conveniently carried in a golf bag or otherwise from place to place during the course of normal play on a golf course. At each location where a golf stroke is to be played, the device is placed upon the ground and the golf tee shaft 23 driven through the bore of shaft 5 and into the earth E, Fig. 3. The golf indicator device is thereby detachably secured in fixed position to the surface of the golf course. The indicator arms 17, 21, which are frictionally held between the flange 6 and washer 7 by reason of the pressure created by the flared portion 8 of sleeve 5, are adjusted in accordance with the character of the golf club to be used and the nature of the stance desired. The golf ball is placed opposite the tip of arrow head 28, the golfer's forward foot is placed with the right side edge of the heel in line with the left side edge of the transverse bar 13, and the golfer's rear foot is placed immediately adjacent the indicator at the rear end of indicator arm 21. After completing the stroke, the golf player may remove the indicator device from the surface of the golf course by lifting it together with the golf tee.

It will be appreciated that, although the invention has been described in detail with reference to one specific embodiment thereof, it will be readily apparent to those skilled in the art that the mechanical elements of the device may be varied and that equivalent mechanisms may be employed for accomplishing the same result, all within the scope of the invention. All such changes, including reversals of parts and the use of certain features independently of other features, are considered to be within the spirit of the invention as defined in the annexed claims.

Having thus described my invention, I claim:

1. A golf direction and stance indicator com-

prising a sleeve having a substantially vertical bore, substantially horizontal flanges at the top and bottom of said sleeve, said flanges extending outwardly of said bore, a lower indicator arm pivotally mounted on said sleeve in frictional contact with the flanges at the bottom of said sleeve, a base on said sleeve above said lower indicator arm, a flight indicator fixed to said base, and an upper indicator arm pivotally mounted on said sleeve in frictional contact with the flanges at the top of said sleeve, said base being formed integrally with said flight indicator and said base having a straight forward edge that extends perpendicular to said flight indicator and coacts with the flight indicator to fix the position and direction of the golfer's forward foot.

2. A golf direction and stance indicator comprising a sleeve having a substantially vertical bore, substantially horizontal flanges at the top and bottom of said sleeve, said flanges extending outwardly of said bore, a lower indicator arm pivotally mounted on said sleeve in frictional contact with the flanges at the bottom of said sleeve, a semi-circular base plate on said sleeve above said lower indicator arm, said base plate having a straight-line forward edge serving as an indicator of the proper position of the heel of the golfer's forward foot, an arm fixed to said base plate at a fixed angle to said forward edge and serving as an indicator of the direction of flight of the golf ball, and an upper indicator arm pivotally mounted on said sleeve in frictional contact with said base plate and with the flanges at the top of said sleeve, said base plate carrying a visible system of identifying marks arranged to indicate the proper positions of one of said indicator arms to indicate the different locations of a golf ball for executing strokes with different clubs, and said base plate also carrying a separate system of identifying marks arranged to indicate the proper positions of the other of said indicator arms to indicate the proper positions of the golfer's rear foot to open and close the golfer's stance, both said indicator arms being pivoted about a common center.

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